THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

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THE R.I.B.A. PRESIDENTIAL ADDRESS

A PRESIDENTIAL ADDRESS strikes the note for a term of office, and it is indeed hard for one entering a second term to bring novelty to his task within a year of having previously done so. To succeed under such conditions is to achieve success indeed, and this the President of the R.I.B.A. has done. It is certain that when the Chair receives its next occupant, Sir Lancelot Keay's term of office will be looked back upon as a most distinguished one, spreading courage and inspiration among his hard-pressed constituents.

These are times when architecture is stimulated by the interest of men, men old enough to remember high standards which now threaten to disappear yet young enough to maintain faith in man's capacity to recover from his deepest depressions. In both years of office the President has revealed, between the lines of his eloquence, a deep concern at certain trends of the times, yet never have his words savoured of the funeral oration. The past has not been all good, and the present is not all bad; in both together are the ingredients for sane progress.

It is, indeed, refreshing to hear the word "tradition" spoken without apology, for the mood of the moment is an irreverent one, which makes too much of surface change in unimportant manner and method, and too little of the changeless fundamentals of life which its architecture must also express. Reference to the Royal Academy Exhibition, which showed a number of gracious utilitarian buildings which must dominate their neighbourhoods for good or ill, was especially welcome, for these buildings showed the rapprochement of art and science in building, from the absence of which we have suffered in the recent past. The Victorian factory of the industrial revolution was a shameful thing which was permitted no decent identity of its own, other than as the means of paying for pomp and ceremony elsewhere. These visions of the modern power stations show man of to-day in his finer mood, and reveal his capacity for preserving his balance in times of distraction and discouragement. They show, as the President indicated, how much more splendid are the wonders of science when the artist is permitted to create the atmosphere which his vision alone can discover.

A most important subject was also touched upon with equal felicity. This was the serious reaction which may beset the student and junior of to-day in having experience of no other times than those in which austerity is the keynote. Architects of all ages suffer under the same repressions, but most retain a knowledge nurtured in more spacious times, and these will be ready to spread themselves graciously once more when, and if, circumstances begin to press less harshly upon them. But those whose experience of fine architecture—such as arises when the things with which to build are readily to hand and time and expense can be spared for those touches which soften the harshness of mere function—is gained only from the text books and the classics of old will be ill-equipped to grasp the fruit of opportunity when that time arrives. As the President said: "It is one thing to possess knowledge and to be unable to use it through force of circumstances, and quite another to be unable to use it when circumstances permit because we do not possess it."

The Schools have much to ponder in this connection, for it is there that the gap must be filled in the interim, and there that the young architect's desire to drink deep of the cup of artistic satisfaction must be nurtured. If the schools equip themselves only to supply the needs of the moment, the future of architecture a generation ahead will be grim. For the time must come when more will be asked of the architect than an ability to marshal prefabricated units into an orderly pattern, and more will enter into man's demands of life than heartfelt gratitude for anything that possesses a roof.

The development of the new towns is another vital subject which rightly claimed its place in the Address. Here again could be sensed a feeling of disquiet, which many of us share, as to whether we have the capacity to make this indelible mark a worthy one upon the history of architecture, for most certainly we shall be judged by the job we make of this unique opportunity. The designer of a new town has no excuse for failure. He is presented with a clean sheet of paper and virgin land, and can turn to no misdeed of his fathers as an excuse for faltering. What he does will be the best that modern England can produce, and if the result is a fine one, history will ring with the praises of these times. If it is a poor one, the age will be marked down as one of small account.

What sort of a job will the planners make of it? Will the new towns inspire pride of citizenship? Will people want to come, and come again, to taste their spacious quality and charm of detail? Or will they repel the observer with some inhuman quality which has failed to take root in the higher instincts of man? Fresh air and hot water alone do not comprise the ingredients for living. These are questions which time alone will answer conclusively, but the answer desired becomes the more likely of fulfilment as we recognise the greatness of the task we have assumed and the pitfalls which abound on either hand.

These few post-war years have at least served to show that there is a point at which officialdom stultifies and stifles. That the President, himself an official architect, recognises to the full the limits of centralisation is a significant thing. That is indeed one of the chief threats to the new towns, for a community is a collection of individuals, patient and long-suffering it is true, but aggressively individual when drilled beyond the limits of its inclination. The Englishman is a lover of order, but no lover of a uniform as the dress for peaceful occupation. His town must express both the order of a smoothly-running concern, and the identity of him, as a man, and of his fellows as similar but distinct individuals. Therein lies the success or failure of the new towns.

Thus has the President once more, and without sermonising, given us ample food for thought throughout the coming session. We take the opportunity of wishing him yet another successful term of office, and our thanks for his loyal efforts on the part of all sides of the profession throughout the past year.

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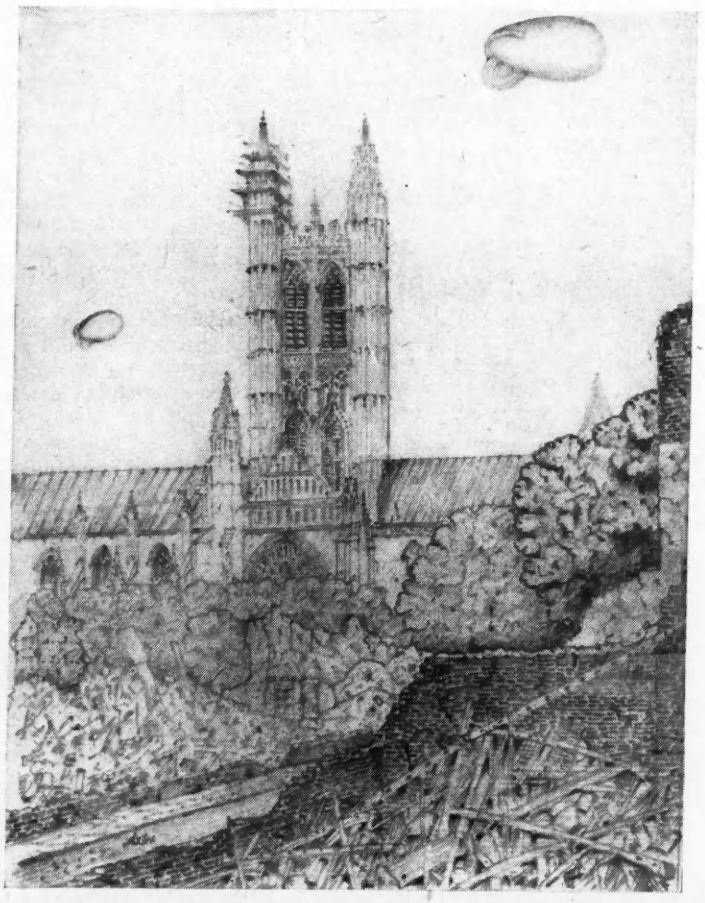
The Royal Marriage.

We take this opportunity of offering our loyal good wishes for their future happiness to H.R.H. Princess Elizabeth and her husband, Lieutenant Philip Mountbatten, R.N., a sentiment in which we are sure the whole architectural profession and building industry will join. On the facing page is shown the delightful dressing chest which has been sent to the Royal couple by the Royal Institute of British Architects; this cannot help but give great pleasure.

It is interesting to read that Clarence House, near St. James Palace, is to become the London home of Princess Elizabeth and Lieutenant Philip Mountbatten. This survival from the Nash era (John Nash designed it in 1825, but he was the first to admit that it was not his masterpiece!) stands to-day as an impressive monument to those spacious days of the Regency, when building for Royalty was considered the pinnacle of architectural fame. Built for the Duke of Clarence, afterwards William IV, Clarence House stands at the south-east corner of Green Park, and in its stuccoed elegance, amid as much spacious park planning as any city in Europe can boast, it looks the perfect cameo of a royal residence. It suffered from blast damage during the war, and it was once felt that it was damaged beyond repair, but apparently this was not the case. As a design it lacks the essential simplicity of John Nash's best work, and although the general form and plan of the building is straightforward the elevations, other than the main front, are curiously inept, bearing in mind that they are the work of the greatest architect of that time. It remains, however, a museum piece of great charm, quite awe-inspiring in its size, and the interior (as it was before the war), with its many red carpets and a diverse collection of fine furniture, was impressive as only a royal residence can be.



CANTERBURY CATHEDRAL FROM THE SOUTH. Our illustration is from a drawing made by Mr. S. W. Cranfield, F.R.I.B.A., and shows the damage caused by the raids of July, 1942.

H.R.H. Princess Elizabeth at R.S.A.

An indication of H.R.H. Princess Elizabeth's interest in the subject of industrial design was given when she took the Presidential chair at the Royal Society of Arts on November 5.

Princess Elizabeth said: "The objects to which the Royal Society of Arts addresses itself are worthy of all the support we can give. They are numerous and their scope is wide, but I will this afternoon select one for which in particular I would enlist your enthusiasm. It is the work of the Society in the field of industrial design. The spacious days are gone. It may well be long years before we can again afford to devote such leisure and energy as did our forefathers to things purely decorative. But we should be defeatist and unimaginative indeed if we concluded that because nearly everything we produce to-day must be severely practical, it must also be without taste or beauty. Therefore, of all the Society's valuable work I do not hesitate to attach the first importance to your encouragement of a high standard in industrial design. A nation whose level of good sense in art was once reflected in the furniture of Chippendale and Hepplewhite, and in the domestic architecture of the 18th and early 19th centuries, cannot rest content with slavish imitations of foreign styles or with a simple faith in the virtue of streamlining. . . . It is for this reason that I would repeat to you a sentence which the Prince Consort used in addressing this Society—'The Department most likely to prove immediately beneficial to the public would be that which encourages the application of the Fine Arts to our manufactures.'"

Maintenance Scholarships in Architecture.

The Architects' Registration Council of the United Kingdom offer for award in June, 1948, certain maintenance scholarships in architecture. The scholarships will consist of a grant for the payment, in whole or in part, of the school fees and necessary subscriptions, instruments, books, etc., and, when necessary, a maintenance allowance not to exceed as a rule £100 a year. The scholarships will be renewable from year to year until the student has finished his or her school training. They will be available for students of British nationality, who could not otherwise afford such training, to enable them to attend architectural schools approved by the Council. The scholarships will be available both for students who have already begun their training and for students wishing to begin their training. Scholarships will not be granted to students who will be less than 17 years of age on October 1 of the year in which the examination is taken. Particulars and forms of application may be obtained from: The Secretary to the Board of Architectural Education, Architects' Registration Council of the United Kingdom, 68, Portland-place, London, W.1. Copies of previous years' examination papers may be obtained on payment of 6d.

The closing date for the receipt of applications, duly completed, is January 31, 1948.

International Union of Architects.

At a meeting held in Brussels in May this year, the Comité Permanent International des Architectes (C.P.I.A.), together with the International Reunion of Architects (I.R.A.), adopted a motion for the creation of an international organisation for architects, to be called The International Union of Architects (Union Internationale des Architectes).

R.I.B.A.'S GIFT TO PRINCESS ELIZABETH. Illustrated above is the dressing chest which the Council and Members of the R.I.B.A. are sending to H.R.H. Princess Elizabeth as a wedding present. It is an early Georgian mahogany dressing chest with fitted top drawer, column corners and shaped feet.

We now learn that the formal Constitutive Assembly, which will unite these two existing national organisations, will be held at Lausanne on June 26, 1948, in the Palais du Tribunal Fédéral. It will be followed by the First Congress of the International Union of Architects, also to be held in Lausanne from June 29 to July 1. This will take the place of what would otherwise have been the 16th International Congress of Architects (C.P.I.A.), organised by the Comité Permanent International des Architectes, and of the 5th International Reunion of Architects (I.R.A.).

The theme for discussion by the Congress will be "The Architect and his New Problems," including: (i) The Architect and Planning; (ii) The Architect and Prefabrication; (iii) Architect, State and Society.

We have a few copies of the programme for the first Congress, which are available on request.

The Building Exhibition Opens.

THE Building Exhibition was safely launched on Wednesday afternoon by the Minister of Works (Mr. Charles Key) in the presence of a distinguished gathering. The speeches are reported elsewhere. Only one matter for regret was felt—the absence of Mr. H. Greville Montgomery, the creator, in 1895, with his late brother, of the present series (of which the current exhibition is the 22nd). Mr. Montgomery (affectionately known as "Monty" to hundreds of his friends inside and out the building industry) is now 84, and has been forbidden by his doctor to leave his Norfolk home. Many must have been thinking of him as the curtain went up on the present show, which can never have been surpassed in variety and technical interest of the displays. It remains open until Thursday, December 4.

Visiting South Africa.

MR. LESLIE WALLIS, chairman of the Public Relations Committee of the National Federation of Building Trades Employers and a former President, has left for South Africa to visit the branch which his firm recently established in Johannesburg. He is carrying fraternal greetings from the National Federation to the builders' federation of South Africa, and also from British Rotary to various of the Rotary Clubs in the towns of the Union he will be visiting.

Professional Announcements.

MR. R. HERMON CROOK, F.R.I.B.A., has removed from 17, Mawdsley-street to 53, Chorley New-road, Bolton. Telephone: 1245.

MR. KENNETH LINDY, F.I.A.A, announces that he has amalgamated his practice with that of the late JOSEPH HILL, F.R.I.B.A., in which he was formerly an assistant. MR. F. S. PALLING L.R.I.B.A., and MR. W. L. GREEN, A.I.A.A.S., have become partners in the joint practice, which will henceforth be styled KENNETH LINDY, JOSEPH HILL AND PARTNERS. The address is 24, St. Mary Axe, E.C.3. Telephone: Avenue 5629 and 4430.

COMING EVENTS

Monday, November 24.

ROYAL SOCIETY OF ARTS. Cantor Lecture on Industrial Design. "Exhibition Display," by James Gardner, O.B.E., R.D.I., R.S.A. John Adam-street, Adelphi, W.C.2. 4.30 p.m.

ASSOCIATION OF BUILDING TECHNICIANS (L.C.C. Branch). "Planning and Building in the Near Future in Great Britain and the U.S.A.," by Professor W. G. Holford. Community Centre Hall, Ethelm House, Cornwall-road, S.E.1. 5.30 p.m.

Tuesday, November 25.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. "The Picturesque in Architecture," by Dr. Nikolaus Pevsner. R.I.B.A., 66, Portland-place, W.1. 6 p.m.

Wednesday, November 26.

ROYAL SOCIETY OF ARTS. "Originality in Italian Renaissance Architecture," by Professor R. A. Cordingley, M.A., F.R.I.B.A., M.T.P.I. (Selwyn Brinton Lecture). R.S.A., John Adam-street, Adelphi, W.C.2. 2.30 p.m.

ARCHITECTURAL ASSOCIATION. Ordinary general meeting. "Sculpture in Relation to Architecture," by Mr. E. Bainbridge Copnall, M.B.E., A.R.B.S., at 36, Bedford-square, W.C.1. 7.45 p.m.

THE ROYAL INSTITUTION OF CHARTERED SURVEYORS (Quantity Surveyors' Comm.). Mr. E. J. Smith, President of the National Federation of Building Trades Employers, on "Present-day Problems of the Builder." 12, Great George-street, S.W.1. 5.30 p.m.

TOWN AND COUNTRY PLANNING ASSOCIATION. Joint Conference with the Council for the Preservation of Rural England, on "The Countryside To-day and To-morrow." Institution of Civil Engineers, Great George-street, London, S.W.1. (Continuing on November 27.)

TOWN AND COUNTRY PLANNING ASSOCIATION. "Planning Development Abroad—Sweden," by T. F. Thomson, L.R.I.B.A., M.T.P.I., 28, King-street, W.C.2. 6.15 p.m.

INSTITUTE OF WELDING. Luncheon. The Connaught Rooms, Great Queen-street, W.C.2. 1 p.m.

Thursday, November 27.

INSTITUTION OF STRUCTURAL ENGINEERS. Mr. F. T. Bunclark on "Constructional Features of Meaford Power Station." 11, Upper Belgrave-street, S.W.1. 6 p.m.

DESIGN AND INDUSTRIES ASSOCIATION (LONDON REGION), in co-operation with HIGHGATE LITERARY AND SCIENTIFIC INSTITUTION. Mr. John Summerson, F.S.A., A.R.I.B.A., on "Stuart London." Highgate Literary and Scientific Institution, South-grove, N.6. 8 p.m.

Friday, November 28.

NATIONAL HOUSING AND TOWN PLANNING COUNCIL. Conference. Royal Hall, Harrogate. 3 p.m. (Continuing until December 1.)

BIRMINGHAM AND FIVE COUNTIES ARCHITECTURAL ASSOCIATION. Fourth general meeting. Mr. W. A. Clark on "Memories of Old London." The Birmingham Photographic Society, York House, Gt. Charles-street. 6.15 p.m.

Tuesday, December 2.

INCORPORATED INSTITUTE OF BRITISH DECORATORS. Mr. H. Edward Newman, F.R.S.A., F.I.B.D., on "Internal Planning in Relation to Decoration." Lecture Hall, Royal Society of Arts, 6, John Adam-street, Adelphi, W.C.2. 6.30 p.m.

From *The Builder* of 1847

Saturday, November 20, 1847.

AND while this [the cry for sanitary reform] is being said in Southampton, another in London is showing that the waste of money caused by defective structural arrangements in the United Kingdom cannot be less than twenty millions sterling, the result of 20,000 deaths and 200,000 cases of unnecessary sickness—and winding up a forcible address with such cheering anticipations as these: "The measure announced in three successive speeches from the Throne, and brought forward in two successive Parliaments, will soon be again offered to your acceptance. . . . Happily, whatever the fate of the measure, the sanatory cause is safe; it rests upon a foundation not to be shaken; it is firmly built upon Truth, Mercy and Justice. It may be resisted for a time; but it will assuredly triumph. . . ." This delightful result, however, is still a long way off. . . . Under the head of "Correspondence" there is a slashing exposure of the Tower Hamlets' Commission of Sewers, which would doubtless attract attention if the Commission were not now virtually defunct. *De mortuis nil nisi bonum.*

E

This view shows the town under construction. In the background is the Peter Cooper Village, a similar development.

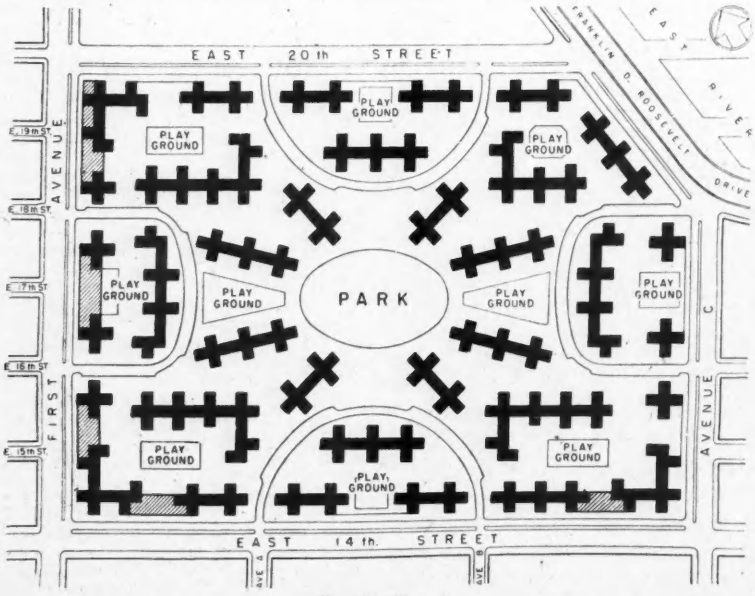
STUYVESANT TOWN

A COMMERCIAL HOUSING DEVELOPMENT, NEW YORK

From an American Correspondent

THE big insurance companies in America had developed immense building projects before the war, and, fortunately for a great many city dwellers, they go on with their projects in increased intensity. The proper kind of investment is one of the main difficulties to-day facing the insurance companies in their search for an average income, and the building of apartment blocks has proved highly appropriate for the needs of insurance companies.

Stuyvesant Town, which the Metropolitan Life Insurance Company is building in the Borough of Manhattan, New York City, the heart of New York, was conceived under the new Redevelopment Companies Law of New York State. This law was passed by the Legislature to encourage the reconstruction of run-down city areas. The new building project is near the East River, not far from the part of New York where the new skyscraper of the United Nations is to be erected.



The Site Plan.

Evacuation of 3,000 Families.

Work was begun late in 1945, and over 500 buildings had to be wrecked, many of them out-dated tenements. Three thousand families who lived in the area had to be evacuated, a large task which was carried out with a minimum of inconvenience for the families concerned. Boarded-up flats, vacant stores and empty sites were common. Nowhere was there a park. In the latter part of the eighteenth century, when Manhattan was still a green island, Peter Stuyvesant, the third great-grandson of the famous Dutch governor, had his home in this neighbourhood.

The plan provided for the rehabilitation of 18 city blocks. Before demolition of the existing buildings could be carried out, a Tenant Relocation Bureau was established—something new in building operations. It was the Company's endeavour to aid those families who had to leave in finding satisfactory accommodation elsewhere. The Bureau gathered information concerning vacant apartments in the five boroughs of the greater city. The Bureau utilised a station wagon to

take husbands and wives on trips to apartments in other parts of the city they wanted to see.

Those who moved out prior to a certain date were granted one month's rent to cover moving expenses. At the end of 1945 virtually all of the families had left the district, and most of the business and industrial firms also had gone. There was no need to evict a single family. In 1946, demolition of the old buildings and construction of the new ones proceeded simultaneously. In August of that year the steelwork began to rise.

The net area of the land (total area within new building lines) is 61 acres.

Housing 24,000 Persons.

Thirty-five fireproof apartment structures are in the process of building. They are twelve and thirteen storeys high, with some ten-storey wings. After their completion they will contain 8,755 apartments and house about 24,000 persons. They will cover about one-quarter of the land. There will be a three-acre central park, lawns, gardens, trees, paths, and ten play sections for children. There will be garages, and provision has been made for some shops. Transit facilities are good.

When the insurance company announced that some of the new buildings would be ready in the autumn of 1947, and declared that preference in leasing would be given to war veterans, altogether about 200,000 letters of applicants were received. While the letters, in the main, came from New York City, a great many came from other cities such as Washington, Philadelphia and Boston. Ex-Service men described urgently the hardship of living in overcrowded quarters with other families.

Apartments in Stuyvesant Town range from one bedroom to three bedrooms in size. A one-bedroom apartment consists of a living-room, dining foyer, kitchen, bathroom and bedroom. The minimum rental for such an apartment is $50 a month (originally it was intended to be $46). The maximum rental for a three-bedroom apartment is $91 (originally it was to be $77). All rentals will include gas and electricity.

The contract of the Metropolitan Life with the City of New York for the construction of Stuyvesant Town has as a principal the Stuyvesant Town Corporation, which the Metropolitan Life organised as a redevelopment company. The contract provided for the exercise of power of condemnation by the City on behalf of the Stuyvesant Town Corporation, so that the necessary land could be assembled for the undertaking. The contract also specifies that for 25 years the Corporation will pay taxes based on the 1943 assessed valuations of the area. Thereafter taxes are to be paid on the assessed valuations of Stuyvesant Town (land and buildings).

As a consequence of this contract, the City will obtain annually during the next 25 years all of the taxes which the district yielded in 1943. The tax yield will be even higher, because the element of tax delinquency as it formerly related to individual parcels no longer exists. The contract provides for rents scaled at moderate levels. Stuyvesant Town therefore will be populated by families of moderate income under the plan of veterans' preference. The Stuyvesant Town Corporation will limit its gross return to 6 per cent.

The design of the new community was the work of a Board of Design composed of Gilmore D. Clarke, chairman; Irwin Clavan, chief architect; Henry F. Richardson; George Gove and Andrew J. Eken.

There is no doubt that this large-scale building by insurance companies is most important for the masses of home-seeking people to-day. The United States so far have done little to fill the enormous gaps in the building programme. The idea to build one-family houses on a large scale is very attractive, but it does not fulfil the urgent needs of the post-war years. Only apartment buildings on a large scale can satisfy the emergency need for homes in a comparatively short time. At present they are preferable to one-family houses, though the latter may be more desirable in the long run.

COMPETITION NEWS

Naval Auxiliary Memorial, Liverpool.

THE Imperial War Graves Commission, 32, Grosvenor-gardens, S.W.1, announces that a number of questions have been asked and answered in connection with the competition for the proposed memorial at Liverpool to the missing Naval Auxiliary personnel of the Second World War, and also states that the closing date for receiving designs has been extended to February 16, 1948.

STUYVESANT TOWN: One of the buildings (three units), now occupied.

CORRESPONDENCE

[Whilst we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

Whither the Private Architect?

TO THE EDITOR OF *The Builder*.

SIR,—The leading article in *The Builder* of November 7 will have been read with interest and sympathy by salaried architects, who are not yet called upon to share the anxieties and misfortunes of their colleagues in private practice. We are members one with another; and a blow suffered by one branch will eventually be felt by all. In the present emergency, it is to be expected that two things will soon happen: advertisements for salaried staff will show a marked decline—or rather, a return to normal proportions; and competition for them will be greater. If the present restrictions upon new building work continue for long, the law of supply and demand will show in a progressive lowering of the salaries offered by local authorities and other employers of architectural staffs.

Your leader goes on to paint a gloomy picture of the future of architecture as a "vocation, a religion, a living tradition," and sees it "emasculated and denied all prospect of free and vigorous growth." The private architect, hitherto unfettered, will be tied to the wearisome routine of a salaried job, if lucky enough to get one; too tired, after a day spent in filling up forms, to feel equal to inspired design; too depressed and discouraged to try an original idea upon an unresponsive committee.

This represents the orthodox belief, which dies hard, that to exchange a fee for a monthly cheque is to forfeit one's artistic soul; or, put another way, that the power to accept or reject a commission, and (if accepted) to give the client what he ought to have, and not necessarily what he would like, is the one remaining privilege which the private architect shares with the exponents of other liberal arts.

No doubt there have been instances (not many, I think) when a rich but otherwise impossible client, demanding imitation Tudor, has been asked to take his commission elsewhere, just as there have been others whose artistic minds and private resources have allowed their architects full scope for the "divine afflatus." But it is easy to exaggerate the shortcomings of committees, and to attribute to them a stupidity and woodenness which in fact is rarely found. I have had the privilege of working side by side with several gifted designers, and cannot recall any instance in which they have been repressed, or their work reduced to the "flatness of mediocrity"—except, indeed, when it was only too evident that some *tour de force* was too brilliant to be practicable. I believe that most of my colleagues would agree that a fine design, or a clear solution of a complex problem, stands at least as good a chance of acceptance by a committee (with a chairman to ensure the designer a fair hearing), as by a private client. Again, from a fairly long experience with several local authorities, I can remember no committee which has not included at least one member well able to study a set of working drawings, and if necessary to criticise them in detail. That their architect will, as a matter of course, give them what is right and fitting æsthetically is generally taken for granted.

Restrictions, however, do exist, and some of them are vexatious, trivial in

character, and hard to bear. But the private architect no longer enjoys much advantage in this respect: he is no more exempt from the "meticulous criticism of his designs by higher authority" than his official colleague. He contributes his share of the price we all have to pay for the benefits of town and country planning, which require staffs of highly critical officials.

Where the private architect has the advantage is in the fact that his client has money; the local authority has none. Practically nothing can be done without a loan; and it is when one has to go cap in hand to the loan sanctioning authority that frustration and heartbreak are likeliest to occur when the completed drawings have been out to tender with the Council's blessing, and the lowest price (one hopes and prays) may not be thought too high. At this, the final stage of perhaps a couple of years' work, no amount of imagination, afflatus or anything else will serve one's turn; the only question is whether the scheme can be carried out within the "ceiling price." It is, however, just possible that the private architect who has recently paid his income tax and his rates, might think this a very proper check upon the too generous expenditure of public money.

Official planning is certainly a "glorified jigsaw in three dimensions"; so is any other kind of planning. It also tends to become stereotyped, which is another way of saying that good types survive, others perish. There are sound reasons why plans for schools, hospitals, flats, and the like, tend to become standardised. They can be built for the money, easily equipped and run, and are efficient machines for their purpose. A plan which is too "clever," wasteful of frontage, expensive to build and manage, will not be repeated. On the other hand, if a brilliant and original solution of a problem in planning emerges, it will most probably attract wide attention and initiate a new type. Happily, there is no such thing, so far as I am aware, as a "type" elevation; an able designer, whether private or official, does not go to a Ministry booklet for guidance in that respect.

It is the common belief that the official architect is a slave to routine, and that too much of his time is filled by the writing of endless returns and schedules. On the contrary, I think it would be true to say that for a busy officer, whether chief or subordinate, few days are alike; jobs of astonishing variety and interest fall to a versatile man.

My own routine duties are two: preparation for and attendance at a monthly committee meeting, and completion of a monthly return of housing progress. Other returns and statistical forms are mainly incidental to post-war conditions. As to the unusual jobs, I cannot suggest that to be put in charge of an exploration for a subterranean cavern is likely to happen to any future entrant to the service; that was a unique stroke of good luck which once befell the present writer. But it will serve to refute the notion that official life is necessarily dull.

C. W. CRASKE, A.R.I.B.A.

Town Hall,
Greenwich, S.E.10.

TO THE EDITOR OF *The Builder*.

SIR,—I have been immensely interested in the latest *affaire d'honneur*, that of "free-lance" or private *versus* salaried architect. It has brought forward once again the old but abortive attempt by bureaucracy to dominate individual enterprise. Such attempts at mastery serve to avail little but ill-feeling, and I feel that all praise is due to Mr. John Swarbrick for his letter which appeared in *The Builder* on October 31. This letter is singular in that the writer sets out to avoid sharpening the controversy and offers some concrete proposals of co-operation for a better understanding. None of the members of our complex, ancient and noble calling should engage in the indignity of sectional dog-fights; they serve only to consolidate the case for the real offenders, *i.e.*, those who attempt to stifle individualism and so introduce control in all walks of our lives.

Many exponents of commercial life regret having attempted in the past to subdue the specialist by employing him on a salaried basis instead of obtaining the specialist's services in a co-lateral capacity, generally mistakenly thinking that the added administration also brings the "middle man's profit" for himself. But in municipal administration it may not be so easy to show that direct specialist employment is anything but beneficial to the ratepayer and taxpayer, more so since the salaried servant is justly entitled to draw his salary while he conforms to the conditions of his service, whether gainfully occupied or not. Conversely, the "free-lance," having accepted a commission, must adhere to his bond—win, lose, or draw. I fail to discern a common plane for quarrelling between two sets of circumstances so diverse, though deliberate agitation may make it appear so.

Clerks of works are necessarily salaried servants, but nevertheless many prefer to work under the "free-lance" or private architect, engineer or surveyor, instead of accepting discipline from councils. This preference is in no way derogatory to the council architect, etc., but is the natural trend to resist the stultifying methods of forms, departmental foibles, etc., so often associated with authoritative bodies. Again, the rates of wages offered in the majority of Civil Service types of job are comparably less than normally obtained from private architects, etc., despite such "red-herring" bait as pensions, superannuation, etc., which is deducted at source like some form of super P.A.Y.E. Although some posts offered by authorities are excellent, I would refer to the advertisements of the last 20 years in *The Builder* to substantiate these assertions.

Patient experience has taught clerks of works, who surely hold a consequential if difficult position in the building industry, that the cycle and/or spiral of events will evolve a rectifier in good time.

H. E. CAMPBELL,
London, N.1. Clerk of Works.

A.B.S. Christmas Appeal.

TO THE EDITOR OF *The Builder*.

SIR,—Once more I am appealing to all members of the architectural profession to help those who are in distress. These are difficult times for all, but for those who no longer have health and youth, or are widowed or orphaned, and who lack the means to buy ordinary everyday needs, the times are indeed grim.

The Architects' Benevolent Society urgently needs funds to help the many unfortunate cases which come before it—architects, architects' assistants, their widows and young children. I earnestly ask you, this Christmas time, to spare half-a-crown, or more if you can, to enable the Society to bring relief to those who so greatly need it.

Please send me all you can spare. It will be used wisely.

LANCELOT H. KEAY,
President, Architects' Benevolent Society.

66, Portland-place, W.1.

R.I.B.A. London Architecture Medal.

TO THE EDITOR OF *The Builder*.

SIR,—May I please correct an impression which your Note in last week's issue may have improperly created? The generosity of Messrs. Farquharson and McMorran in acknowledging the help which, in this happy collaboration over the Blackheath-road Police Section House, it has been our privilege to give them, was very much appreciated, but I must point out that the honour and credit for this fine building belong entirely to them.

The spirit of Goethe's remark, "If we would do something we must first of all be something," is so much exemplified in these two gentlemen and their work that I would ask you to allow me to add this further tribute.

It gives me pleasure now to recall that on completion of the building in 1939 I was able, in my official capacity as deputy to Mr. Trench, to record: "This building, designed by gentlemen, stands as a gentleman in its own right."

F. T. BUSH, A.R.I.B.A.,
Deputy Police Architect.

Scotland Yard, S.W.1.

The Building Exhibition of 1895.

TO THE EDITOR OF *The Builder*.

SIR,—In your article on the Building Trades Exhibition in your issue of November 14, you state that I was the first chairman of the Committee of Architects of the Building Trades Exhibition in 1895, but you seem to have confused me with my father, the late Professor Banister Fletcher, who became the first chairman at the request of Mr. Greville Montgomery.

I well remember the first Exhibition at the Agricultural Hall. This was the period when I first met Greville Montgomery, who has been a very dear personal friend of mine ever since that time.

The Exhibition of 1895 was a great event, because Mr. Greville Montgomery, for the first time, induced architects to take a real interest in the Exhibition, which has been such a great success ever since.

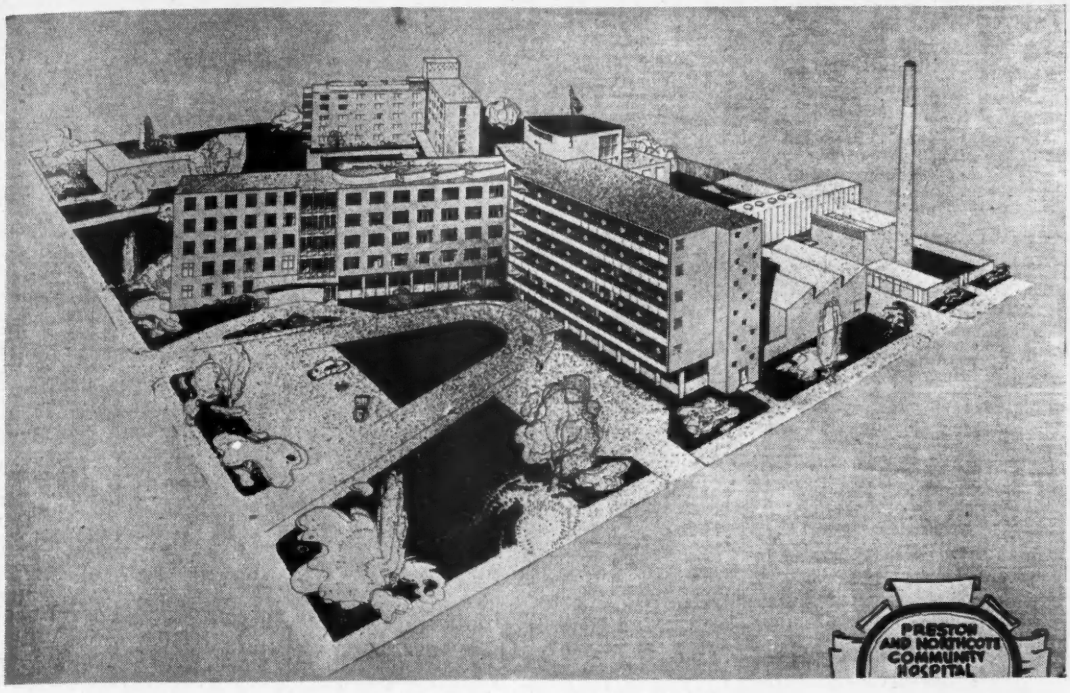
BANISTER FLETCHER, P-P.R.I.B.A.

3 (North), King's Bench Walk, E.C.4.

WORLD ENGINEERING CONFERENCE

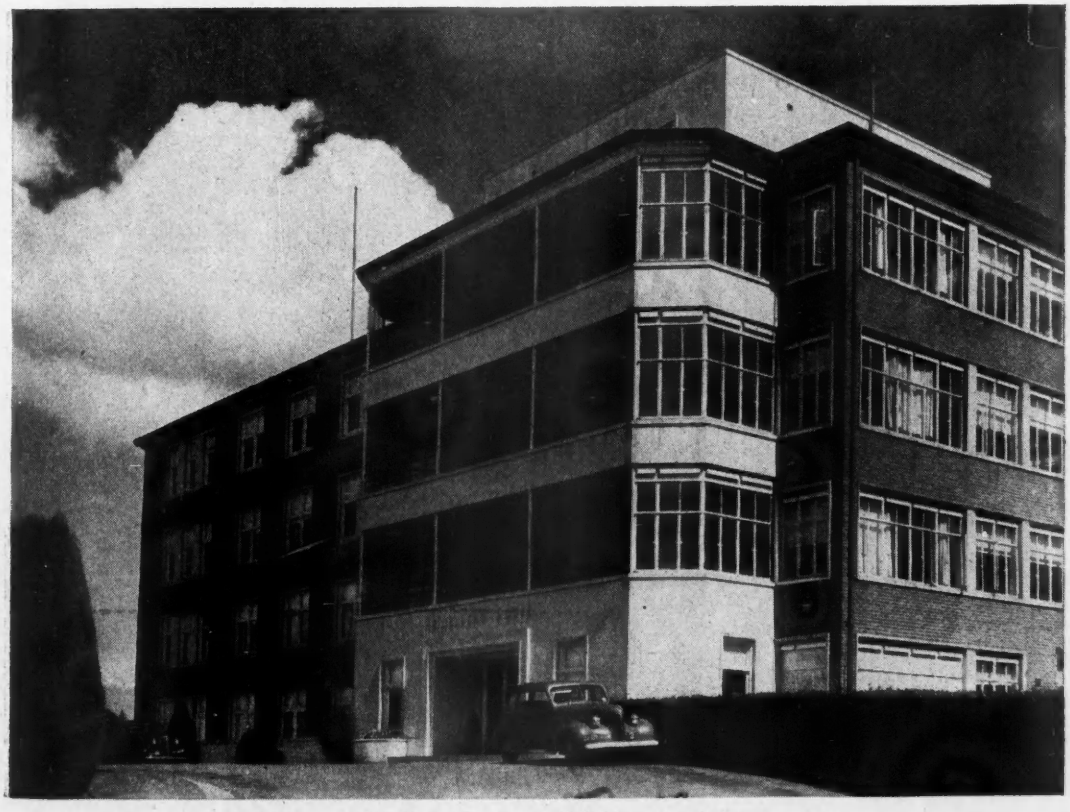
THE Council of the World Engineering Conference met recently in Zurich, when representatives were present from 25 nations. The Conference, which has amongst its main objects the association of engineers and technicians in a world organisation, the training of engineers and technicians to fulfil adequately their social duties, and their representation in the various international organisations, was particularly concerned with the part to be played by engineers and technicians in the development of U.N.E.S.C.O. The Council, on the motion of the British delegation, resolved to set up a permanent committee for the study of the effects of technological development on social and international relations. This committee will work closely with U.N.E.S.C.O.

The Council also decided on the immediate establishment of a committee to study the effects of power production in the world of to-day. These two studies, and the formulation of recommendations based thereon by the engineers and technicians of the world, will be one of the chief portions of the Council's work during the next 12 months. Decisions to hold the next World Technical Congress in Cairo in March, 1949, and to develop intensively an international exchange service for engineers and technicians, were also taken.

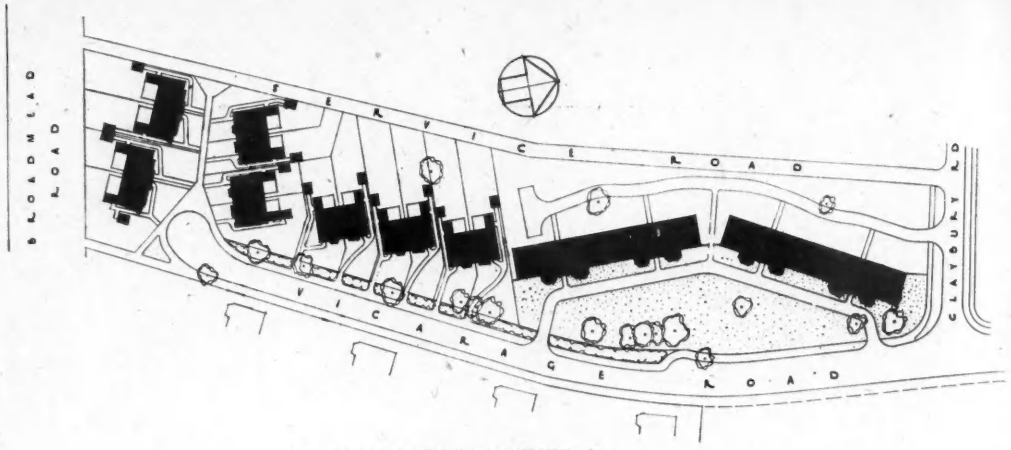


Preston and Northcote Community Hospital, Melbourne.

THE two buildings illustrated on this page are the work of Messrs. Yuncken, Freeman Brothers, Griffiths and Simpson, of Melbourne, one of whose partners—Mr. Roy Simpson, A.R.A.I.A., Dip.Arch.—is shortly leaving Australia for a tour of the world. He expects to be in England by Christmas. Mr. Simpson is the winner of the Robert and Ada Haddon Travelling Scholarship, and his tour will be principally directed towards the latest trends in the design of public hospitals, old people's homes and cancer institutions.



Heidelberg House : A Melbourne Hospital.

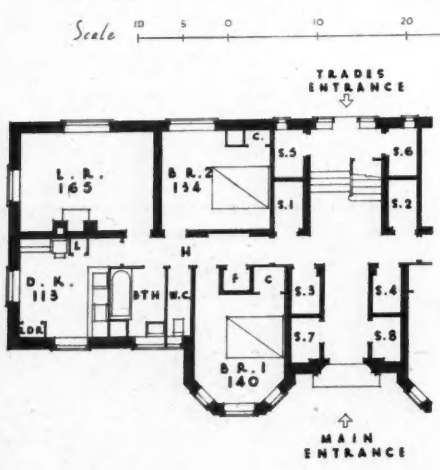


VICARAGE-ROAD ESTATE: Layout.

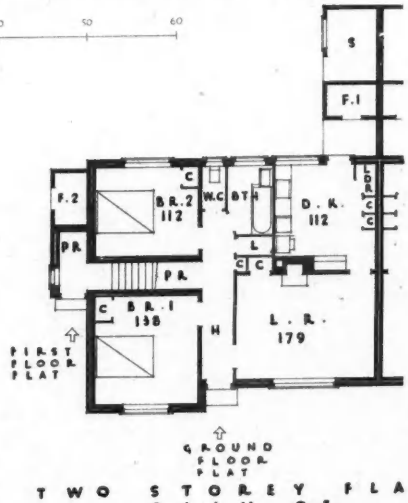
PERMANENT HOUSING ESTATES, WANSTEAD AND WOODFORD B.C.

TOOLEY AND FOSTER, ARCHITECTS

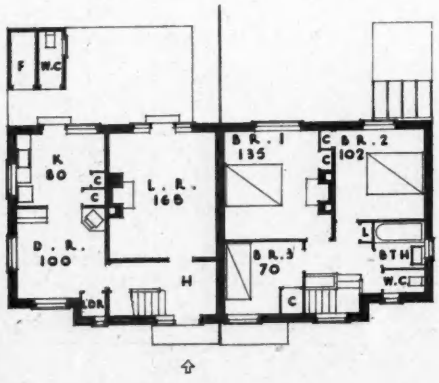
On July 5 last the Wanstead and Woodford Borough Council inspected their permanent housing estates, where good progress has been made. The first house was opened in August, 1946, by Mrs. Winston Churchill, D.B.E., the Rt. Hon. Winston Churchill being the M.P. for the Woodford Division.



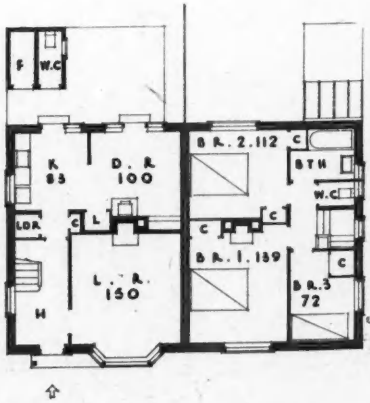
FOUR STOREY FLATS
PLAN OF GROUND FLOOR FLAT



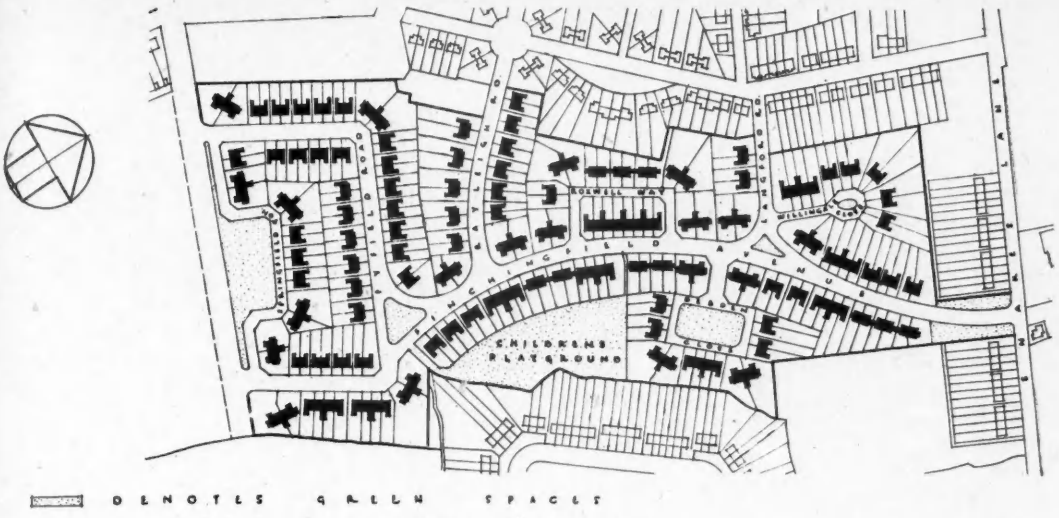
TWO STOREY FLATS
PLAN OF GROUND FLOOR FLAT



THREE BEDROOM TYPE B
GROUND FLOOR · FIRST FLOOR



DWELLINGS TYPE A
GROUND FLOOR · FIRST FLOOR



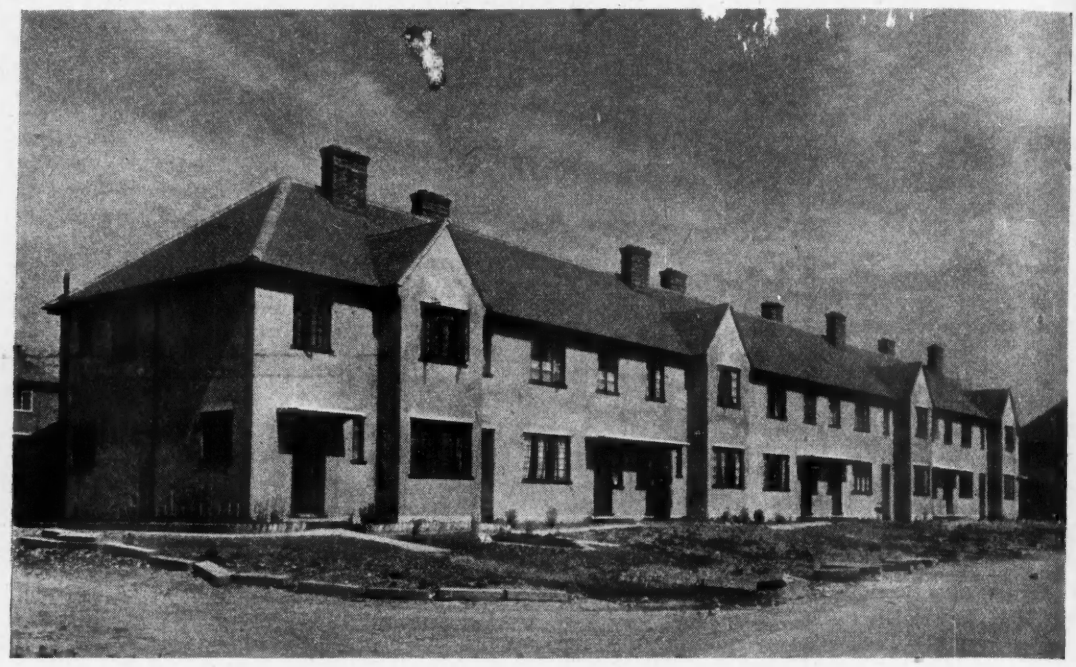
GLENGALL ESTATE No. 2: Layout.

The Council have 392 dwellings in the course of erection or completed, the total completed on July 5 being 210. The Council's programme in their six estates amounts to 1,000 dwellings. Two schemes—the Vicarage-road and the Glengall No. 2 Estates—are now illustrated.

The first scheme, that started in October, 1945, at Vicarage-road, Woodford Bridge, now has all dwellings occupied, and consists of two blocks of flats containing 32 dwellings of one-, two- and three-bedroom types, and 14 semi-detached three-bedroom houses planned in a set-back fashion on the steeply sloping ground in Vicarage-road. The contractors were Messrs. Richard Costain, Ltd., of Dolphin-square, London, S.W.1. The sub-contractors for the fireproof floors were the Kleine Flooring Co., W.1.

A larger estate (Glengall No. 2) adjoining the original Council estate leading off Lower Snakes-lane, Woodford Green, is a scene of great building activity, with four building contractors at work on 262 dwellings. Messrs. Allen Fairhead & Sons, Ltd., of Enfield, have now been at work 18 months and have completed 92 dwellings in all, including the whole of those in Fyfield-road, and have a further eight nearly completed. Fyfield-road is now a complete road with tar-paved paths and lamps. All ground floors are solid, finished with asphalt laid by the General Asphalte Co., Ltd., S.W.1. Messrs. Thomas Bates & Son, Ltd., of Harold Wood, have a contract for 96 houses and have completed 36 dwellings. Messrs. Hammond & Miles, of Ilford, have completed 16 out of their contract of 42 dwellings, whilst a local firm, Building Estates, Ltd., of Woodford Wells, have 24 houses in hand of which they have completed 20. Messrs. W. & C. French, Ltd., of Buckhurst Hill, have been the contractors on

GLENGALL ESTATE No. 2: Houses in Fyfield-road.



GLENGALL ESTATE No. 2: Terrace of 8 Houses, Finchingfield-avenue.

the Glengall Estate for roads and sewers with German P.O.W. labour.

On the above two estates, in addition to the 210 dwellings completed, a further 70 dwellings are roofed in. The electrical work has been carried out by A. J. Holt & Co., of Harlesden, N.W.10; Escott Bros., of South Woodford, E.18; E. C. Porter, Ltd., of Ilford; and H. J. Large, of Woodford Green.

The state of progress at the Council's other sites was (at July 5) as follows: at the Roses site, Salway Hill, Woodford Green, the Essex Construction Co., Ltd., East Ham, E.6, are the builders. The scheme is for 42 flats, and one block is roofed-in whilst several other blocks are in various stages of construction and the entrance roads and sewers are laid. The sub-contractors for the fireproof floors are Frazzi, Ltd., W.C.2, and for electrical work, Escott Bros., of Woodford.

On the site in Eastern-avenue, Wanstead, Messrs. J. & J. Dean, Ltd., of Leyton, E.10, are erecting 42 flats; here the roads and sewers are completed. The sub-contractors for fireproof floors and electrical work are Frazzi and Escott respectively. This scheme brings the total the Council have completed or in hand to 392 dwellings.

The number of dwellings completed average two per week since the commencement was made just after the cessation of European hostilities.

The architects to the whole of the Council's housing schemes are Messrs. Tooley & Foster, of Buckhurst Hill, and the quantity surveyors, Messrs. Thurgood, Son & Chidgey, E.C.2.

OBITUARY

J. D. Clarke, F.R.I.B.A.

We regret to record the death, on November 8, of Mr. John Daniel Clarke, F.R.I.B.A., of St. Wilfred's, Willingdon, Eastbourne. Mr. Clarke was regarded as an authority on the restoration of and additions to ancient buildings, and was particularly keen on the preservation of old houses, especially in Eastbourne.

After being elected an Associate of the Royal Institute of British Architects in 1903, he worked for a few years in South Africa with the late Sir Herbert Baker, R.A., being mainly concerned with the design of Grey College, Bloemfontein. He returned to England in 1909 and practised in Eastbourne, first at 25, Hyde-gardens, and afterwards at Terminus-road.

One of his most interesting tasks was the careful demolition of Court Lodge, Udimore, Hastings, a 14th-century house, and its re-erection near Groombridge for a friend, Mr. Lawson Wood. He was also responsible for renovations at The Thatched Cottage, Wannock; 4, Borough-lane, Eastbourne; Old Tokefield, Cranfield (for Mr. Frank Swinnerton, the novelist); Frensham Manor, Surrey; Ripe Manor, Sussex; and Stone Cross, Ashurst.

Mr. Clarke also specialised in the design of the small country house, and he also wrote a large number of articles on architectural subjects. At frequent intervals his designs were accepted for exhibition at the Royal Academy Summer Exhibition.

A special character in his work, quite apart from the traditional aspect, is shown in two residences, Sentosa, Summerdown-road, and Field-place, Willingdon. One of his outstanding works was the House of Mercy, at Horbury, Yorks. He also prepared a design for the Grand-parade, Eastbourne, improvement scheme. He was elected a Fellow of the R.I.B.A. in 1921, and during the 1914-18 War served in the Royal Naval Air Service.

Mr. Clarke, who had been in poor health in recent years, leaves a widow and two sons—Lieut.-Cmdr. Geoffrey Clarke, R.N., and Mr. Daniel Clarke, A.R.I.B.A., who was taken into partnership in the practice about ten years ago.

E. Thomas Johns, F.R.I.B.A. (Retd.).

We regret to record the death in his 85th year of Mr. Edwin Thomas Johns, F.R.I.B.A., of 35, Fonnereau-road, Ipswich.

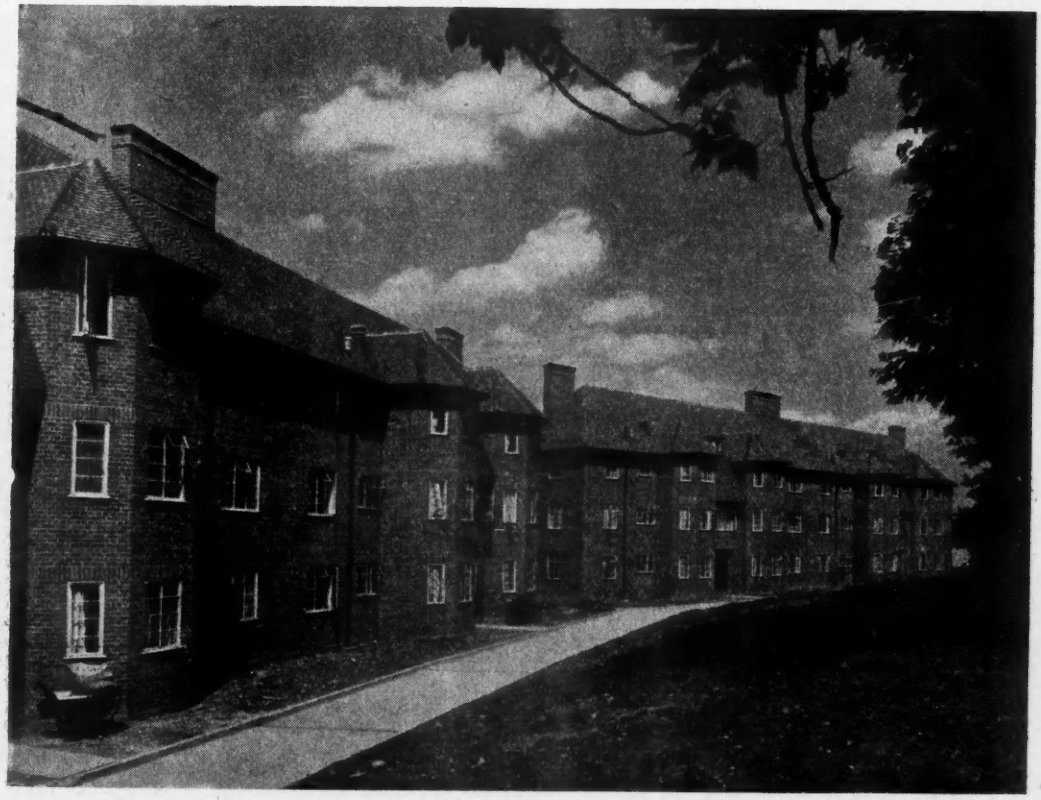
Mr. Johns was a popular and familiar figure in Ipswich, where he was born. He was articled to the late James Butterworth, of 6, Museum-street, and on Butterworth's death entered the office of Brightwen Binyon, who was responsible for Burlington Baptist Chapel and various other local buildings. Later he joined William Eade, whose partner he became. In 1922, Mr. Johns took into partnership his nephew, Mr. Martin J. Stater, A.R.I.B.A. In late life he was elected President of the Suffolk Association of Architects.

Throughout his active years Mr. Johns practised art as well as architecture, water-colours being his favourite medium. He studied at the Ipswich Art School, under William T. Griffiths, and he had long been connected with the Ipswich Art Club, of which he was hon. secretary for many years, and later president. He was elected a Fellow of the R.I.B.A. in 1925.

Birmingham Civic Society.

According to the 1947 Annual Report of the Birmingham Civic Society, the work of this organisation during the past year has been less associated with municipal projects than usual. However, considerable progress has been made, notably in connection with the reconstruction of Ravenshaw Bridge, Solihull, a well-known picturesque timber footbridge. The work was completed a few days before the Spring floods, which would certainly have swept the old bridge away. A grant of £50 was made by the Society towards the cost of the work. The Gold Medal of the Society was presented to Mr. William Haywood, F.R.I.B.A., in recognition of his eminent services during many years towards the increase of civic amenity.

VICARAGE-ROAD ESTATE: A Group of Houses.



VICARAGE-ROAD ESTATE: "Woodbridge Court" Flats.

PERMANENT HOUSING ESTATES, WANSTEAD AND WOODFORD B.C.

CANTEEN, WEST HAM, FOR LONDON TRANSPORT

DESIGNED IN THE OFFICE OF THE LONDON TRANSPORT ARCHITECT

THIS CANTEEN, WHICH SERVES ONE thousand London Transport men attached to West Ham Trolleybus Depot, was opened by the Mayor of West Ham, Alderman F. A. Warner, on October 29. The canteen is as attractive and up to date as present-day restrictions permit. The kitchen has been redesigned and the canteen staff facilities enlarged; the kitchen, stores and cloakroom walls are finished in cream tiles.

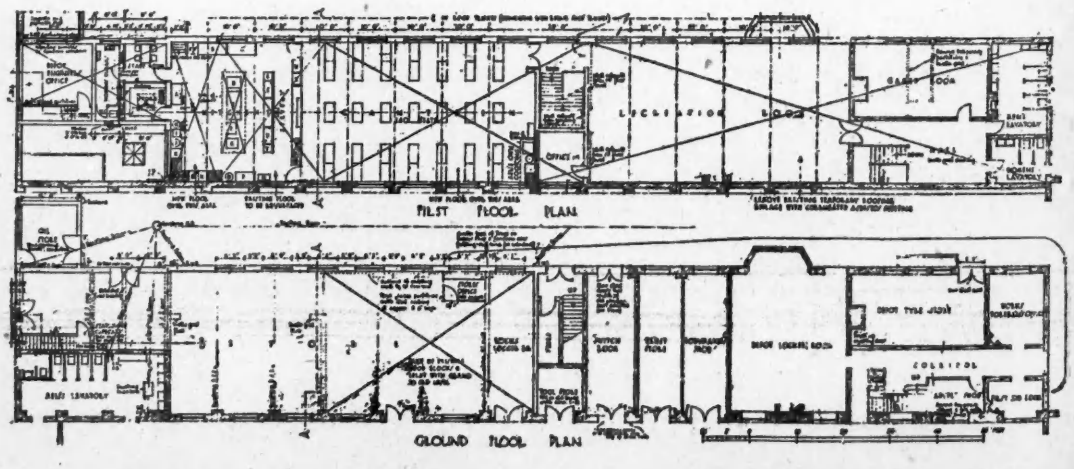
A balanced system of ventilation has been planned, ensuring uniform conditions throughout the kitchen and the canteen, and the ventilation is so arranged that the air in the canteen flows towards the kitchen; thus no cooking smells can reach the diners. The canteen and kitchen are lit by fluorescent lighting, and there is a counter of modern design, with a showcase in the centre. Food and plates are kept hot in hot cupboards and the food is served speedily through the hatches. The chairs are fitted with studs to reduce noise to a minimum.

In course of construction is a new club-room with two billiard tables, table-tennis table, dart-board and other facilities for indoor games. It is hoped that the facilities now available at West Ham will be extended to other depots in the London Transport area in due course.

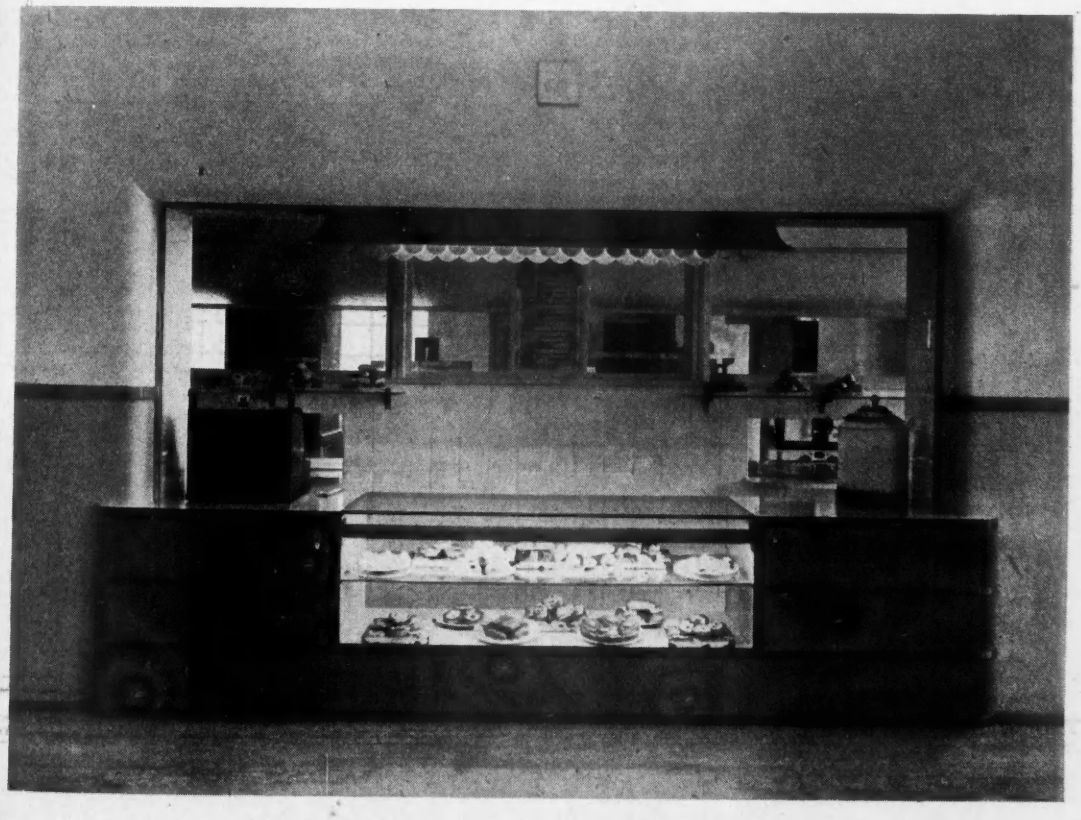
The Entrance Front.

Construction.

The new building was erected on the existing foundations of a building bombed in 1944, and has 14-in. brick walls. It has an overall length of 180 ft. and width of 30 ft., and comprises, in addition to the dining-room and kitchen, a new club-room, locker-rooms, and store-rooms. The building has a slate damp-course. There are precast concrete beam floors. The roof consists of asbestos sheeting on steel trusses, with 10-ft. centres. Cills and copings are of cast stone. A fibreboard false ceiling, distempered in cream, is suspended from the underside of the roof trusses. The dining-room walls have a buff lino for the dado and cream distemper above, while the floor surface is of terrazzo cement with marble chippings. In the kitchen, stores and cloakroom the walls are tiled up to full height. Construction of the new building began in July, 1946. The new club-room is still being completed, and will have similar internal finishings to the dining-room. The builders were Messrs. A. W. Jaggers and Sons, Ltd., Alfred's Way, Barking.



The Dining-room. *Below* : Detail of Dining-room Counter.



CANTEEN, WEST HAM, FOR LONDON TRANSPORT

THE BUILDING EXHIBITION

MINISTER OF WORKS PERFORMS OPENING CEREMONY

THE RT. HON. CHARLES KEY, M.P., Minister of Works, opened the 22nd Building Trades Exhibition at Olympia on November 19. At the opening ceremony, at which Sir Lancelot Keay, K.B.E., President of the Royal Institute of British Architects, presided, the Minister said: "Before the war, the Building Exhibition was generally looked upon in the industry as the chief and easiest way of keeping abreast with changing materials and techniques, and now, with a gap of nine eventful years since the last Exhibition, we are at last to have an opportunity to see laid out before us all the many developments which have taken place since 1938, and to be given an invaluable opportunity of surveying the technical state of the industry as it is to-day.

"The complaint is sometimes made that the building industry carries tradition too far; that it is conservative; that it is, in fact, unable to adapt itself to changing circumstances. To a charge of this kind this Exhibition itself is a complete answer, since we see here to-day how much time and effort are, in fact, being devoted by manufacturers as well as by research workers to make available to industry new methods and new ideas. In this Exhibition architects will find new materials and new uses for old ones. Builders will meet new techniques, new methods of construction and new machines, while the public, too, will find new home design and new equipment.

"It only remains for us to make good use of the accumulative knowledge present here and to apply it to the construction of the buildings with which we are concerned. I would also suggest that you bring up to this Exhibition not only your foremen and leading hands, but also your craftsmen and labourers so that they may profit from its lessons.

"As you are all only too well aware, the Government have found it necessary to make drastic reductions in the capital investments programme. I am keeping in the closest contact with the representatives of the industry so that with their co-operation we can achieve a smooth transition to the reduced level of activity and keep a balanced programme. This concentration of the resources of the industry may well prove to be beneficial in enabling more rapid progress to be made in the completion of individual jobs. Where labour is short we must have more mechanisation; where materials are scarce we must try alternatives, and not only materials and plant and craftsmanship but site organisation and supervision must be of the best.

"The reduction of the capital investment programme has been necessitated not only by the need to establish a programme within the resources of the industry, but also by the critical situation of the country in relation to the balance of payments, and the over-riding necessity to promote exports. The building and building materials industries have a very big part to play in this battle. Many of the factories and other works which are under construction are intended for the export trade, and it is clear that the resources of the industry must be directed towards the completion of all those products which can enhance our export potential. But when that has been done there remains the possibility of exporting the products of the building materials industry themselves. I am glad to note that the promoters of this Exhibition and some of those who are exhibiting here are placing considerable emphasis on this aspect of the matter. I also take this opportunity of welcoming, on behalf of H.M. Government, all those representatives of foreign governments and interests who are coming to this Exhibition with the object of seeing what there is for them to buy.

THE BUILDING EXHIBITION OPENS. Seen above is the Rt. Hon. C. W. Key (Minister of Works) opening the Building Exhibition at Olympia on Wednesday afternoon. On his left are Sir Lancelot Keay, K.B.E., P.R.I.B.A. (in the chair), and Sir Giles Gilbert Scott, O.M., R.A., P.-P.R.I.B.A., who proposed a vote of thanks to the Minister. A second review of the principal exhibits begins on page 587.

Incentives in Industry.

"The opening of this Exhibition this week coincides with the introduction of a system of incentives in the industry. We rely on that and all that is best in the way of new materials and methods to restore productivity to the level vital for our national recovery, and I am therefore most gratified to find so many developments which have already taken shape by which this efficiency can be secured.

"To ensure that there are no gaps and that progress will be maintained and accelerated, I am taking steps to effect a yet closer contact between the industry and the research for which I am responsible. I believe the Exhibition will have a profoundly stimulating effect on the building industry, helping it forward and encouraging its further technical development.

"Finally, I think we owe a debt of gratitude to the organisers of this Exhibition. I am sure that you will be sorry, as I was, to learn that Mr. H. Greville Montgomery, the director, who has worked so hard to ensure its success, is unable to be present. I wish the Exhibition every success."

SIR LANCELOT KEAY said: "During my Presidency it has been my earnest endeavour to revive as many as possible of those functions which have had to be suspended in consequence of the war and its aftermath. I am, therefore, particularly pleased to continue a long-established tradition by presiding here to-day.

"It was with very great regret that I heard on Saturday morning that Mr. H. Greville Montgomery, acting under doctor's orders, would be unable to attend this ceremony or to visit the Exhibition at any time. Mr. Montgomery—one of the Honorary Associates of the Royal Institute—is 84 years of age. It is due to his great and very successful efforts that this Exhibition has been revived.

"In these days, when there is a tendency amongst some to bemoan our difficulties rather than to apply the mental, moral and physical energy necessary to overcome them, the keenness and hard work of Mr. Montgomery should act as an inspiration. We shall, I do not doubt, see much in this Exhibition that will interest us. Though we may be unable to obtain many of those things that we should like, it will certainly stir up hope for the future. It is within my knowledge that keen eyes abroad are still turned to these islands, and great interest is shown in the products of those who serve the building industry. It may be that their demands will be satisfied before ours. We are schooling ourselves to accept that. The important thing to remember is our capacity to supply our needs, with all the efficiency which is evidenced here to-day, when through hard work and some tribulation, the brighter days come, as come they surely will."

A vote of thanks to the Minister of Works was proposed by SIR GILES GILBERT SCOTT, P.-P.R.I.B.A., who said that Mr. H. Greville Montgomery had an able and competent successor in his son, Mr. Hugh Montgomery, who was carrying on the good work.

After opening the Exhibition Mr. Key visited the National Federation-L.M.B.A. clubroom and signed the visitors' book. He was presented with a specially bound copy of the history of the London Master Builders' Association, "Seventy-five Years On," as a souvenir of his visit.

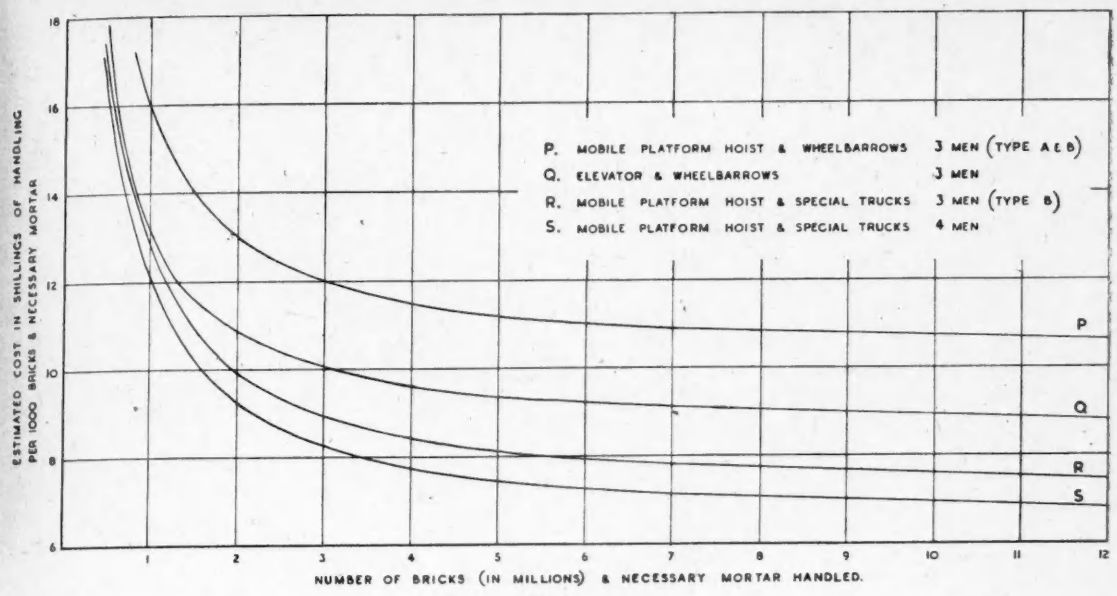


Fig. 1.

HOUSE-BUILDING SITES

THE HANDLING OF BRICKS AND MORTAR*

[By the Division of the Chief Scientific Adviser, Ministry of Works

FOR many years hod-carrying and head-boards have been the chief means of transporting bricks and mortar, and little use has been made of any form of mechanical equipment. That which has been used has not been entirely satisfactory, since much of it had been designed for large civil engineering work, where the problems are very different from those met on small house-building sites. Since labour was plentiful and wages were low in the years between the wars, builders seldom considered altering their methods. The engineering industry, on its part, therefore, was not called upon to turn its attention to the handling problems of the small house builder.

There are alternatives to the use of hods and head-boards which involve no mechanical equipment, and one of these is to employ wheelbarrows and ramps made from trestles and a number of planks for taking the bricks on to the scaffolding. This method finds much favour in Scotland. A more complicated form of ramp has been used by a builder in the South of England; in this case the ramp was made from tubular steel scaffolding and planks and was built to serve two adjacent pairs of houses. The ramp was approximately 75 ft. long and took 16 manhours to erect. The rate of handling to the second scaffolding was approximately 500 bricks per manhour, but the work was extremely fatiguing, and this rate could not be maintained for long periods. Another method, used by the same builder, was to build a scaffolding pier from the front of the houses to the roadside, approximately 10 ft. above ground. The bricks were thrown on to this pier direct from the lorry, stacked there and distributed later in wheelbarrows. The pier was constructed from tubular steel scaffolding and planks.

Yet another method used during a part of the building process is to run a scaffold plank from the top of the adjacent brick stack to the scaffold. The top of the stack is removed and distributed by wheelbarrows. The lower parts have to be taken up by hods.

With the exception of the use of hods or head-boards, none of these methods are sufficiently flexible for general use. The off-loading of bricks on to a scaffold pier will present great difficulties if brick deliveries are badly delayed and borrowing from one stack to another becomes necessary. The use of static equipment, such as ramps and the normal types of builders' hoists, ties up plant which is not continuously used, and will not always be economical. Other methods, making better use of more suitable equipment, are therefore required, and a number of new devices are now coming into use. Before describing these and how they may best be used, a statement of the problems entailed is necessary.

Problems

The house under consideration is of 900 sq. ft. floor area, of two storeys and usually built in semi-detached pairs. For such a house, approximately 17,000 bricks and 8-8½ cu. yd. of mortar are needed. The problem is to transport these materials from the roadside and mixer to various points round the house, from ground level to the highest lift of the scaffolding, in stacks ready for the bricklayers.

For the main walls to eaves level, three lifts of scaffolding are normally used, with extra lifts for building the party and gable walls to an apex height of 28 ft. (approximately). The bricks are usually brought to the site in lorries and unloaded as near the house as possible. The mortar is mixed on the site, the mixer being placed near the building wherever possible.

The severe weather experienced on building sites makes it necessary for any mechanical equipment to be robust and easy to operate. Another important requirement to be met is that of mobility—*i.e.*, two or three men should be able to move the equipment from one working position to another in a few minutes.

Description of New Methods

To solve these problems, a number of hoists, elevators and trucks have recently been put on the market. No single one of these provides an altogether satisfactory answer in itself, but the use of a number of suitable combinations is described below. These methods have been evolved as a result of trials at the Ministry of Works Field Test Unit, and by study on house-building sites.

The disadvantage for this purpose of the stationary type of hoist, which is fixed to the scaffolding, is that it cannot be used to serve more than one or two blocks at the same time. The rate of supply of materials needed on these small blocks is so far below the capacity of the hoist used in this way that it cannot be kept fully employed. Further, since it is usually advantageous to have several blocks under construction at a time, and so provide a continuity of work for the various trades, it would be necessary (in order to keep the bricklayers supplied with bricks and mortar) to employ a number of stationary hoists.

These defects are largely overcome if sufficiently mobile equipment is employed, serving several blocks at the same time.

A further advantage of mobile equipment is that, with the present shortage of materials, it can be easily moved from a block for which there are temporarily no materials to one for which materials are available.

All the methods described are based on the use of mobile equipment placed in the charge of a team of men who move from block to block, supplying bricks and mortar in advance of the bricklayers' requirements. They will visit the same block more than once during the day, the number of times depending upon such factors as the length of time mixed mortar can be left on the scaffolding before being used. Obviously, only the trucks or wheelbarrows are required for supplying the materials needed before the scaffolding is erected.

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1. PLATFORM HOISTS AND TRUCKS

The use of platform hoists is not new, but the designs of those employed on housing sites lacked an essential feature—that of mobility. A really mobile hoist, which can be moved in a matter of minutes, and can be used in conjunction with wheelbarrows or special trucks for carrying the bricks and mortar, can result in an economical answer to the whole of the handling problem. Platform hoists can also raise other materials—*e.g.*, concrete lintols, door frames, etc.

A considerable improvement on the handling time involved when using wheelbarrows can be effected by using the principle of the stillage and truck (much used in factories), whereby once the stillage is loaded individual handling of the bricks is avoided until picked up for laying by the bricklayer. The trucks are used for wheeling the stillages from one point to another, and it is important that they can be manœuvred in confined spaces, especially on scaffolding. Examples of available equipment of this type are given later, following which reference is made to other developments in progress.

Platform Hoists.

A.—Type "A" Transportable Hoist (see Figs. 2-4). Price £300 approximately. This is a very mobile platform hoist capable of lifting a load of 5 cwt. to a height of 20 ft. (or 30 ft. when 10 ft. extension is fitted). The hoist, powered by a small petrol engine, is mounted on two large-diameter rubber-tyred wheels for moving from block to block. The novel method of raising and lowering the mast enables two men to carry out either operation in two minutes. It is easily manœuvred over hard ground by two men, and six men can move it 50 yards over soft, sticky earth and marshland in two minutes.

Examples of Methods of Use.—The following examples are based on the principle, previously mentioned, of the team of men moving round with the equipment from block to block during the day, supplying the bricks and mortar in advance of the bricklayers' requirements. The type "A" trolleys mentioned are fully described under "Trucks."

Equipment.	No. of men in handling team.	No. of bricks (8-hour day) + necessary mortar.
Hoist and type "A" trolleys...	3	9,000
Hoist and type "A" trolleys	4	14,000
Hoist and wheelbarrows	3	6,000
Hoist and wheelbarrows	4	7,500

B.—Type "B" Mobile Hoist (see Figs. 5-7). Price £300 approximately. This is a mobile platform hoist, lifting a load of 5-7 cwt. to a height of 15 ft. The hoist, powered by a small petrol engine, is mounted on two large-diameter rubber-tyred wheels, for which there are two positions, one for wheeling with the mast vertical and the other when the mast is lowered to the horizontal position. The low ground clearance of the hoist necessitates the use of planks when moving over soft ground.

Examples of Methods of Use.

Equipment.	No. of men in handling team.	No. of bricks (8-hour day) + necessary mortar.
Type "B" hoist and type "A" trolleys...	3	8,000
Type "B" hoist and type "A" trolleys...	4	12,500
Type "B" hoist and wheelbarrows ...	4	5,200
Type "B" hoist and wheelbarrows ...	4	6,700

Trucks.—The following is an example of a set of trolleys, etc., specially designed for handling bricks and mortar on the ground and on the scaffold :—

A.—Type "A" trolley, brick carrier and mortar bin (see Figs. 8-11),

A set of this equipment consists of :—
2 trolleys, price £12 10s. each.
2 mortar bins, price £2 10s. each.
50 brick carriers, price £1 each.

The carriers are designed to avoid individual handling of the bricks until picked up by the bricklayer. Each carrier holds 48 bricks (2⅝ in. size) or 40 bricks (2¾ in. size). The mortar bins, each holding 1½ cu. ft. of mortar, are loaded at the mixer and transported by the trolleys. The spot boards are filled from the bins with a shovel. The trolleys, similar to those used by railway porters, are used for wheeling and depositing the carriers, and are extremely manœuvrable, especially on scaffolding.

Further Developments of Hoists and Trucks.

Further developments are proceeding in several quarters aimed at producing similar equipment which can be sold at a lower cost and can be operated successfully by a smaller gang. Recent development work at the Ministry of Works Field Test Unit has shown the advantage of a type of brick-carrying truck which clamps the bottom row of a small stack of bricks and thus enables it to be transported without the aid of stillages, pallets or other special containers.

A truck of this type has recently been placed on the market. By building the main brick stack in a suitable fashion, the loading of the truck by hand can be eliminated. It is also possible, if bricks are arranged suitably on the lorry, to unload with the truck.

Designs are also on the drawing-board for a telescopic mobile platform hoist

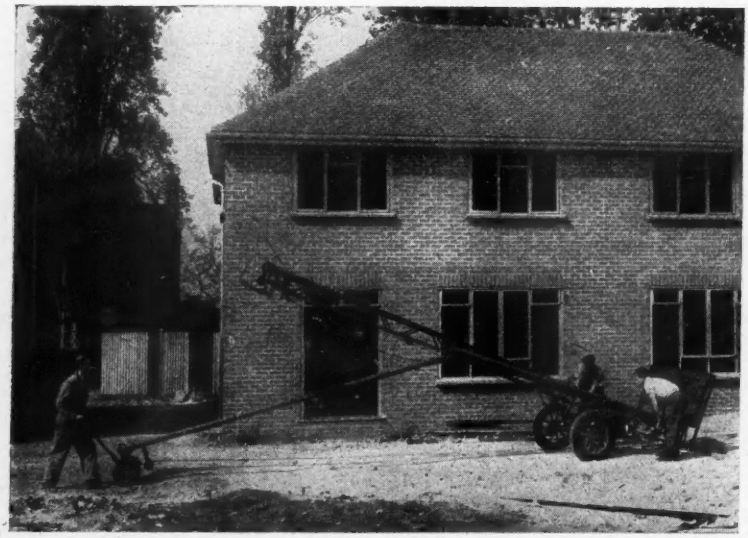


Fig. 2.—Erecting Type "A" platform hoist.

Fig. 3.—Type "A" hoist erected.

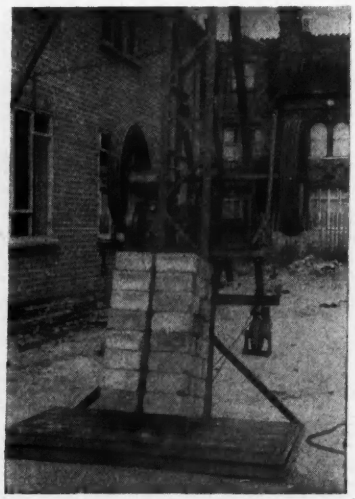


Fig. 4.—Close up of Type "A" hoist.

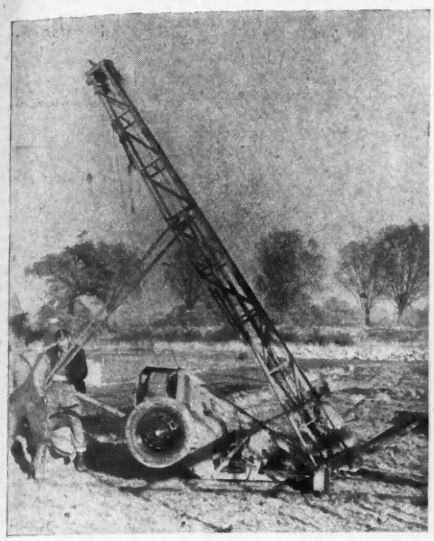


Fig. 5.—Erecting of Type "B" Platform hoist.

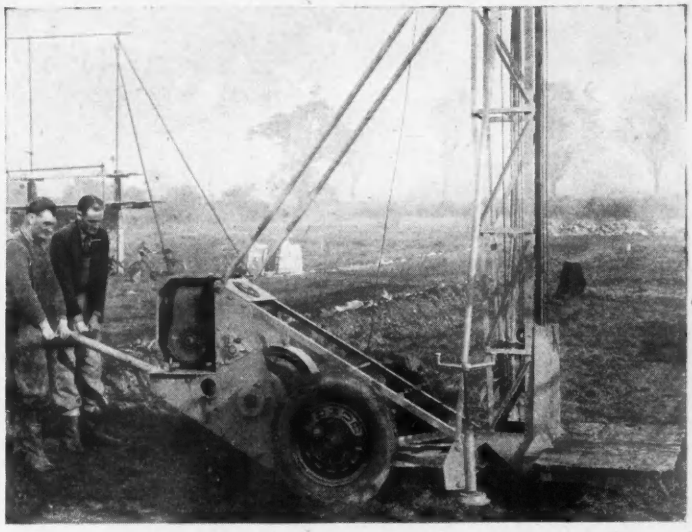


Fig. 6.—Manoeuvring Type "B" hoist with mast erected.

which will collapse to a size small enough to pass through a doorway, so that it can be used internally as well as externally. It is considered that this type of hoist will be of particular use in those parts of the country where the bricklaying is carried out from the inside of the house.

2. ELEVATORS AND TRUCKS

Elevators can be used for lifting the materials on to the scaffolding, provided that they are sufficiently mobile for moving round a building site. The combination of trucks or wheelbarrows and an elevator will solve the whole problem, since the trucks can be used for carrying the bricks on the ground and again on the scaffolding for distributing the bricks raised by the elevator. Here again the best method of use of such equipment is to place it in the charge of a team of men who move round with it from block to block during the day, supplying bricks and mortar in advance of the bricklayers' requirements.

A suitable elevator is shown in Figs. 12 and 13. Price £250 approximately. The elevator consists of a number of small trays

Fig. 7.—Moving Type "B" hoist with mast lowered.

Fig. 8.—Type "A" brick carrier.

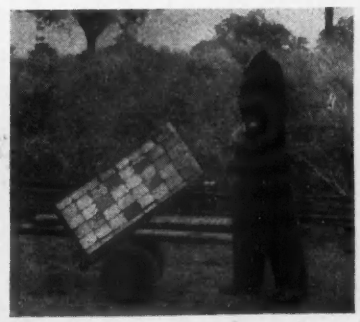


Fig. 9.—Trolley and carrier being wheeled.

on an endless chain, mounted on a jib, which can be adjusted to deliver the bricks at any height between 6 ft. and 22 ft. Mortar is elevated in buckets by means of a simple attachment. The whole mechanism is mounted on two large-diameter iron wheels, which enable it to be moved by four or five men and is

Fig. 10.—Type "A" trolley.

powered by a small petrol engine. Other building materials, *e.g.*, small concrete lintols, breeze concrete blocks, tiles, slates, etc., can be raised by the elevator.

EXAMPLES OF METHODS OF USE.

Equipment.	No. of men in handling team.	No. of bricks (8-hour day) + necessary mortar.
Elevator and Wheelbarrows	3	7,000*
Elevator and Wheelbarrows	4	7,500†

* This figure applies only when bricks are stacked at foot of elevator.

† When bricks are 20 ft.—30 ft. from the foot of the elevator.

Estimated Costs of Handling

1. Before it is possible to estimate the costs involved when mechanical equipment is used, it is first of all necessary to have an idea of the amount of work which it could be given. In our particular case, if the number of bricks to be handled in the immediate future can be estimated, then the probable costs can be found.

2. In Fig. 1 the estimated costs of using the equipment described in the paper are shown. These figures are based on the principle of relating, as directly as possible, the cost to the amount of work done, and are composed of the following :

(a) Capital cost of the equipment ;
(b) Maintenance and renewal costs (estimated in collaboration with the Plant Division) ;
(c) Petrol and oil costs, based on consumption tests ;
(d) Labour cost, based on the output figures quoted in the paper, which are based on records during trials.

3. The labour cost accounts for 70—75 per cent. of the total after three million bricks have been handled (see Fig. 1), and thus any variations in the output of a team will greatly affect the total cost. The output figures quoted are based on the men working at a rate which can be maintained without any undue effort, assuming that they have become used to working with the equipment. In this respect, less skill is required to use the equipment than to use hods. Investigations show that, due to variations in effort and skill, the actual cost when employing hod carriers can vary from 7s. to 12s. or even considerably higher for each 1,000 bricks and necessary mortar handled.

Fig. 11.—Type "A" trolley and mortar bin.

4. To illustrate the use of the graph, an example is given. Suppose a builder anticipates that he will be building 200 houses, each with 15,000 bricks ; by referring to the graph it will be seen that the estimated cost when three million bricks are to be handled is between 8s. and 10s. per 1,000 bricks, using the equipment represented by curves *Q*, *R* and *S*. This represents the estimated cost of handling with full amortisation of the equipment, and is valid even if the equipment is never used again.

5. Expressed in this way, the handling costs are, for practical purposes, independent of the overall speed of building (provided, of course, that the houses are built within the life of the machine and the peak output of the machine is not exceeded). It is obvious, however, that speedier building may make savings in other directions, and will reduce the period of time before the builder gets his money back on the equipment.

6. These estimated costs include those of the labour when actually handling the materials, and assume that other work is given to the men if the day's demand of bricks and mortar is less than the team's capabilities.

7. The disadvantage of the wheelbarrow, compared with specially designed trucks, when used with platform hoists, is clearly shown by the estimated costs.

CONCLUSIONS

1. It is shown that mechanical equipment falls into two classes : (a) horizontal transport, and (b) vertical transport, both being necessary to solve the whole handling problem. Platform hoists have certain advantages over the continuous chain type of elevator in being able to lift a greater variety of building materials, whilst the continuous motion of an elevator tends to set the pace to the operators.

2. The use of specially designed trucks results in considerable increase in output over wheelbarrows. This is shown very clearly in the estimated costs, based on records of observed outputs.

3. Any brick and mortar handling equipment for use on house building sites must be extremely mobile and easy to operate.

4. The best method of use for such mobile equipment is to place it in the charge of a team of men who should move round the site from block to block with the equipment, supplying the materials in advance of the bricklayers' requirements.

5. The cost of handling bricks and mortar with the equipment described decreases rapidly with the total amount of work it does during its life.

Estimates given above show that costs between 8s. and 12s. per thousand bricks and necessary mortar can be achieved when three million bricks are handled. This is the equivalent of about 180 houses. If these were built in four years, the equipment could be idle for from 50 per cent. to 73 per cent. of the total working time without exceeding the estimated costs of traditional methods.

Fig. 12.—View of elevator, showing bricks and mortar being raised.

Fig. 13.—Bricks being removed from elevator.

PAYMENT BY RESULTS IN WARTIME BUILDING

"Payment by Results in the Building and Civil Engineering Industries During the War," published on November 12 for the Ministry of Works by H.M.S.O. (price 6d.), is an historical record of the application of the Payment by Results Scheme operated under the Essential Work (Building and Civil Engineering) Order, 1941. This scheme was introduced by the Government in July, 1941, as a measure to speed production in the wartime building and civil engineering industries.

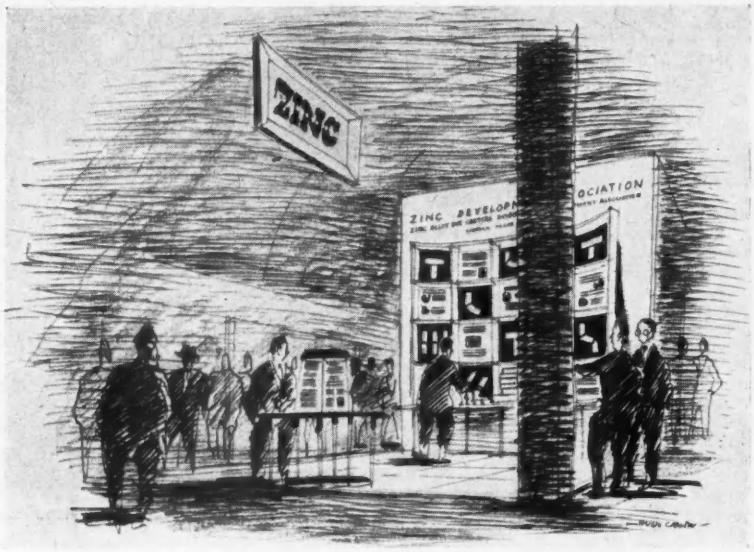
While the report does not claim to portray the results likely to be obtained by the application of payment by results to peacetime industry, it comes at an opportune time when the building industry has decided to introduce incentive schemes to peacetime building. It is considered that the record of the experience gained during the war can, if properly used, afford some guidance to contractors and others who may themselves be evolving bonus schemes in accordance with the recent agreement.

The wartime scheme was applied on all sites scheduled under the Essential Work Order, and during the six years in which it was operated, covered the bulk of the Government's wartime building programme, which was of the order of some £2,000,000,000, embracing the construction of ordnance factories and camps, airfields and runways for the use of British and Allied Forces, the Phœnix and Beetle components of the Mulberry Harbour scheme, and other forms of reinforced concrete floating structures, the Fido scheme for the dispersal of fog on airfields, and the Pluto project, and later the preparation of permanent housing sites and the erection of the various types of temporary house. With the withdrawal of the Essential Work Order in March, 1947, the Government scheme ceased to operate.

During this period Government Payment by Results advisers visited scheduled sites regularly in order to give guidance in operating the scheme, and their reports provided a vast amount of information which forms the basis of this publication. From these reports national statistics were derived, particularly in regard to the average output achieved in relation to the national basic output and the bonuses paid. The results, based on many millions of man- and machine-hours worked under the scheme, are set out in tables covering the main trade schedules. There are special tables showing the average time taken to erect the various types of temporary house, and the hourly bonuses earned on this work.

The report summarises the main principles under which the scheme was operated, and there are chapters dealing with the problems encountered and methods adopted on building sites to overcome them, both from the employers' and operatives' point of view. The report also deals with the general effects of the scheme on output and cost and site organisation, on the quality of the work, and the application of bonus schemes.

The general conclusions of the report are to the effect that the scheme was efficient in achieving the object of speeding production, which was so necessary at the time; that substantial savings in cost were in many cases made, even if the final labour cost was not, in general, less; that the general level of the basic outputs was reasonable for the conditions under which the wartime work was carried out, and that there is no evidence that the application of the scheme adversely affected the quality of the workmanship provided the supervision was adequate.



Zinc Development Association's Stand, No. 171, Row H, designed by Peter Inglis.

ROUND THE BUILDING EXHIBITION

REVIEW OF EXHIBITS—2

We continue our review of exhibits of interest now on show at the Building Exhibition, Olympia, opened on Wednesday by the Minister of Works, the Rt. Hon. Charles Key, M.P. Visitors may obtain information at *The Builder* Stand (No. 125, Row G).

M.O.H. AT OLYMPIA

POST-WAR HOUSING

THE Ministry of Health's exhibits at the Building Trades Exhibition have been designed with a two-fold object: (1) to show types and examples of post-war houses, and (2) to suggest lines on which house-planning for high-density areas may possibly evolve in the future.

Exhibits in the first group show, by means of models or photographs, representative examples of the traditional and non-traditional types of houses which local authorities, in partnership with the building industry, have provided since the war. Photographs are also included of the temporary houses of the bungalow type.

There is also a set of three models of typical interiors of local authority houses based upon three ways of living. These are: (1) The kitchen-living room, popular in rural districts. (2) The working-kitchen, which finds favour in towns (the kitchen in this case is used only for cooking and laundry, meals being eaten in the living-room. (3) The dining-kitchen, devised for families who prefer to have their meals in the kitchen. (In these cases a larger kitchen is provided.)

With the aim of stimulating discussion and interest within the architectural profession and the building industry, a small number of new house plans which have so far not passed beyond the drawing-board stage are illustrated. They include a scheme for four-storey maisonettes; a model of a block of these is shown, together with a section of the block to a larger scale featuring the internal arrangements. The underlying idea is to meet the desire among many people for a house with the convenience of a flat. At the same time it provides a suggestion for building in high-density areas where accommodation is needed for childless couples or those with near-grown-up families.

Three ideas are also shown for the planning of three-storey town houses for families of five or more which continue the tradition of urban building and town planning. There is a model of a terrace of ten of these three-storey houses, with drawings showing the interior layout of the individual houses.

This is part of the joint exhibit of the Ministry of Works, Ministry of Health and Department of Scientific and Industrial Research and is to be seen in the Gallery (Stands 323-328).

REVIEW OF THE STANDS

BRICKS, TILES AND ROOFING MATERIALS

MESSRS. G. A. HARVEY AND CO. (LONDON), LTD. (No. 131, Row G), exhibit a wide range of products connected with the building industry. Foremost is an example of zinc and copper roofing—a trade in which the firm has specialised for many years. There are also a variety of ventilators, chimneys and cowls and a comprehensive range of mild steel gutters, pipes and fittings. An important feature of the latter is the process of hot galvanising used by the firm, which ensures all surfaces being completely coated, so that rust-producing influences are excluded.

HIGHWAYS CONSTRUCTION, LTD. (incorporating the business of THE FRENCH ASPHALTE CO.), are showing on stands No. 151, Row H, and No. 194, Row J, samples of the various types of asphalt or pitch mastics which are used by them for roofing, flooring, damp-coursing, etc., together with photographs of work they

have carried out in various parts of the United Kingdom.

CONSTRUCTIONAL AND METALWORK

The stand of the BATH AND PORTLAND STONE FIRMS, LTD. (No. 93, Row E), is designed to show new methods of using Portland, Ham Hill, Bath and Doulting stones. It also shows the various ways in which stone can be adapted for different classes of architecture, interior and exterior work, and masonry and carving. The stand was specially designed by the exhibitors' own technical staff.

THE CAMBRIDGE ARTIFICIAL STONE CO., LTD. (No. 160, Row H), are exhibiting a precast concrete joist of "tee" section for use on suspended floors up to 14 ft. clear span with a super load of 50 lb./sq. ft. The unit has a special nailable top and bottom cast integrally with body of beam and thus affords fixing for normal boarded floors and plasterboard ceilings. Terrazzo window boards in pleasing colours are also shown, and the BRITISH ART TILE CO., LTD., shows polished concrete tiles with attractive finishes. A novel type of mortarless building block is also shown which is about to go into production and which economises in erection time.

FORSTER MACHINE COMPANY, LTD. (No. 518, Gallery), display full-size show models of steel gates, "Sureclose" door springs, tight steel gate frames (for export and home trade), garden swinging seat and hammock, farm gates, steel spurs for fencing, scaffolding joints, and wrought-iron interior decorating.

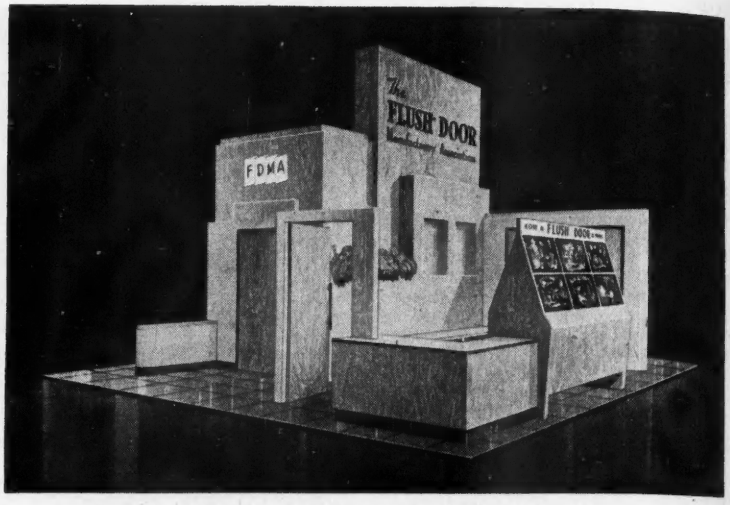
THE LONDON AND MIDLAND STEEL SCAFFOLDING CO., LTD. (No. 139, Row G), exhibit all types of tubular structures—scaffolding work, grandstands, mobile towers, storage racks, sheds, trolleys, driving stages, water chutes, crush barriers, and examples of tubular framework, etc. Also shown are patent steel guard board clips, reveal pins, plain and adjustable base plates, solid forged steel castors with ball bearings, etc.

THE NEUCHATEL ASPHALTE CO., LTD. (No. 98, Row E), exhibit samples of asphalte rock obtained from the Val de Travers mines, in the Canton Neuchatel, Switzerland. A flooring material for housing and other purposes, "Nacomastic," with a bituminous and pitch basis, is shown. Another department of the company, the "Nacofelt" roofing section displays examples showing how this built-up felt roofing is applied.

"TWISTEEL" REINFORCEMENT, LTD., have the walls of their stand (No. 70, Row D) decorated with murals by John Hutton. Among the exhibits shown are samples of various weights of steel reinforcing fabric manufactured by the firm, together with samples of cold worked reinforcing bars. There are also models of schools and factories, showing the application of barrel vault roofing, a shell type of concrete construction in which the firm specialises.

On stand No. 346, Gallery, A. VIGERS, SONS AND CO., LTD., show specimens of various types of flooring which are available, including ¼ in. parquet, ⅜ in. by 2 in. American overlay flooring, rubber, cork and jointless flooring.

The stand of the YORKSHIRE COPPER WORKS, LTD. (No. 128, Row G), display, in a practical way, their "Yorkshire" solid drawn light gauge copper tubes (in straight lengths and coils) and "Yorkshire" capillary fittings for domestic hot and cold water services; gas carcassing and appliance installation pipes; underground pipe lines, sanitation, waste, heating and panel-heating. Externally, the stand is panelled with "Yorkshire" cupro-nickel tubes and "Yorkshire" copper housing tubes.



The Flush Door Manufacturers' Stand, No. 69, Row D.

The stand of the ZINC DEVELOPMENT ASSOCIATION (No. 171, Row H) is designed by Mr. Peter Inglis. A curved display panel is divided into sections containing examples of the new standard-sized zinc rainwater gutters and down pipes which conform to the forthcoming British Standard Specification. These rainwater goods are to be available all over the country, and the Z.D.A. will be publishing a booklet about them in the near future. Below the curved panel is a counter for the display of books and leaflets published by the Z.D.A. and its affiliated Associations, the Zinc Alloy Die Casters Association and the Zinc Pigment Development Association, as well as a special number of the "Zinc Bulletin."

"THE BUILDER" STAND AT OLYMPIA

The Builder newspaper will be represented at Stand No. 125, Row G, which has been planned with a view to a display of the publications and books sold. The three special "Exhibition" numbers of *The Builder* will be on view there as published.

Among the publications on sale will be "Old London Illustrated," price 10s. 6d.; "Law Relating to Dilapidations and Waste"; "Law Relating to Fixtures"; "Everyday Science for Architects and Builders"; "Powers of the Architect"; and "Small Houses and Bungalows," specially produced and published for the Exhibition, price 4s., by post 4s. 6d. In addition there will be a comprehensive selection of publications devoted to architecture and building, also "The Architects' and Builders' Compendium."

Always of interest are *The Builder* models. These will be on view and will comprise "Old London Bridge" and "London's First Water Works, 1582."

CONTRACTORS' PLANT

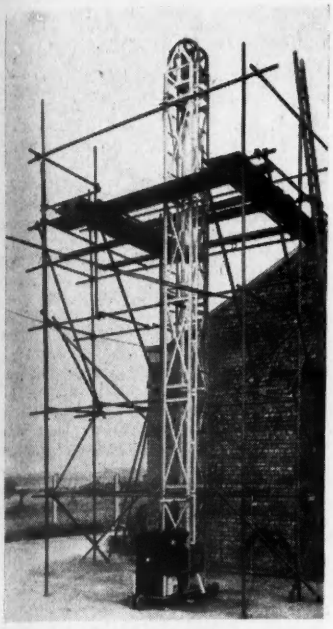
E. P. ALLAM AND CO., LTD. (No. 281, Row Q), give a comprehensive display of vibrating equipment, "Planet" platform hoists and concrete elevating plant. The "Allam" bar cutting machine is a new machine working on a new principle, for it cuts round, square, flat or hexagonal bars and has a capacity for mild steel bars up to 1¾-in. diameter. The "Allam" hand-operated bar bending machine is also new and is specially designed for half loops and complete circles.

BENFORD, LTD. (No. 249, Row N), show a full range of their latest models including 5/3½, 7/5 and 10/7 cu. ft. capacity mixers, with and without side loader and water tank. A characteristic of the machines exhibited is the emphasis placed on mobility. Both the 5/3½ and the 7/5 without loader models are offered on Dunlop extra heavy duty pneumatic tyred wheels, running on roller bearings, and as standard alternatives to the ordinary steel or solid rubber tyred wheels, with which they are interchangeable.

CENTRAL DISTRIBUTING CO. (No. 315, Row T) have a comprehensive display of spray equipment ranging from the "Volspray" 1A/4, with pressure kettle and powered with a one-third h.p. electric motor, to the "Volspray" Twenty outfit, which is powered by a 5 h.p. petrol engine and capable of operating two high-speed guns to heights of 100 ft. or more. The "Crystal" spray plant (see p. 591), light in weight and easily carried by hand and supplied in all voltages for A.C. or D.C. is also on view.

The exhibit of E. R. COLE LTD. (No. 170, Row H) comprises typical electric tools and equipment from the range manufactured by Messrs. Black and Decker, Service Electric Co. and Barlow-Whitney, Ltd. and expert advice will be available on their use. Also on view is the "Econocut" brick cutter, designed for the speedy production of special sizes on site from standard bricks and slabs. Full details of the firm's plant hire service are also available.

DREW, CLARK AND CO., LTD. (No. 34, Row B), exhibit a range of "Diamond" patent extension ladders in two and three sections; "Push-Up" extension ladders, combined ladders and self-supporting steps,



The "Hodoist" Hoist (Northern Steel Scaffolding, Stand 56, Row C).

pole ladders, auto-folding platform steps, and "Rap-Rig" patent sectional scaffolding.

FELCO HOISTS, LTD., have two stands at the Exhibition. On No. 209, Row K, the firm, which specialises in the manufacture of "Felco" chain blocks, exhibits its lifting appliances and equalising slings, while on No. 54, Row C, is shown a comprehensive range of friction hoists and accessories.

THE GEO. H. GASCOIGNE CO., LTD. (No. 180, Row J), demonstrate the "Kee Klamp" system of tubular construction, which, apart from the ordinary building and industrial fields, is used in the making of cow-stalls for milking machines and for the framework of semi-prefabricated farm buildings. The stand comprises a building framework, partly covered, having a 20 ft. span. There are examples of pedestrian guard railings and storage racking.

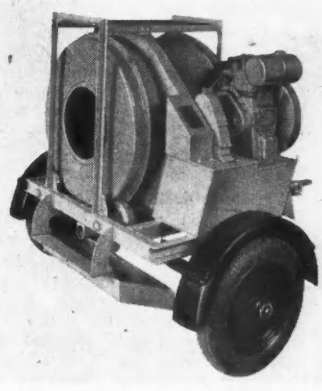
KANGO ELECTRIC HAMMERS, LTD. (No. 185, Row J), exhibit and demonstrate the following: "D" type hammer, for heavy cutting away and drilling holes up to 24 in. deep and 2 in. diameter; "C" type hammer, for hacking, chase cutting, plugging, vibrating, bush hammering, etc.; "S" type hammer, for all types of overhead work, scaling, wood-working, etc., and the spade hammer, for clay and trench digging.

Messrs. W. KENNEDY display (No. 218, Row K) the full range of Kennedy benders for the rapid and accurate cold, unloaded bending of tubes, bars, angles, strips, tees, channels and other sections in steel, aluminium alloy, brass, copper tungum, stainless steel and other metals. Among the models shown which are used by the building trade are light-gauge copper tube benders for domestic supply work; steam, gas and water pipe benders up to 2 in. capacity; and the new power bar bender, which can bend bars up to 2 in. dia. and is automatic and press-button started. Demonstrations are given.

THE LINER CONCRETE MACHINERY CO., LTD. (No. 240, Row M), show the "Liner" Junior hand-fed concrete mixer, the "Rolpanit" mixer, the "Portasaw," a portable engine-driven saw bench, in two sizes, ripping and cross-cutting up to 9 in. depth of cut, the "Liner" rotary drum mixer, drum driven through and running on rubber tyred rollers, and the "Cumflow" mixer. Other exhibits are: Slab, block and brick machines, the "Vibrelec" high-speed vibrating table, the "Liner-Altex" electric vibrator and "Liner-Moulds" for flags, kerbs and edgings.

THE MIDLAND SAW AND TOOL CO., LTD. (No. 152, Row H), are showing four of their machines as follows: "Midsaw" universal woodworker 9 in., which is a saw bench, planer and jointer, thicknesser, moulder, morticer, borer and tenoner; Type "L" saw bench, 26 in., motorised model with fabricated steel body; a cross-cutting and grooving machine, and a motorised bandsaw machine, 30 in., with ball-bearings throughout, with depth of cut 17 in.

M. SEMET AND CO., LTD. (No. 31, Row B), exhibit a large range of vibrating equipment, primarily for use in the placing of concrete, either precast pieces or *in situ* work. These include electric vibrators of various sizes, suitable for



The "COMAL" Trailer Portable Mixer (Concrete Mixers, Ltd., Stand 56, Row C).

immersion or shutter vibrating, and attachment clamps for various operations, vibrating tables and generators.

The stand of STEPHENS AND CARTER, LTD. (No. 293, Row R), comprises a structure formed in tubular steel scaffolding, in both 2 in. and 3 in. tube. This illustrates the usefulness of 3 in. tube for such work as gantries, etc. A full-size patent travelling painters' cradle is also on view, together with a range of the company's own manufactured articles, comprising builders' pole ladders, push-up extension ladders, "Simplex" rope-operated extension ladders in two parts and three parts, and builders' handcarts and barrows on pneumatic-tyred wheels.

EQUIPMENT FOR BUILDINGS

ASSOCIATED CLAY INDUSTRIES, LTD. (No. 178, Row J), comprise a group of companies manufacturing sanitary ware in fireclay, earthenware and vitreous china, and also the "Bast" fireplaces. Examples of these products are displayed on their two-storey stand in the main hall. The company also manufactures salt-glazed pipes and electrical conduits.

A modern electric water-heating system, showing a Charlton "Twin" installation, is the theme of BRITISH NATIONAL ELECTRICS' stand (No. 135, Row G). The "Twin" dual-purpose water heater provides a complete hot-water service from a single compact unit. The installation and operation are presented by a sectionalised "house interior," which shows, floor by floor, the simple plumbing and electrical connections necessary. There are no flues or chimneys, and the economy in installation costs is obvious.

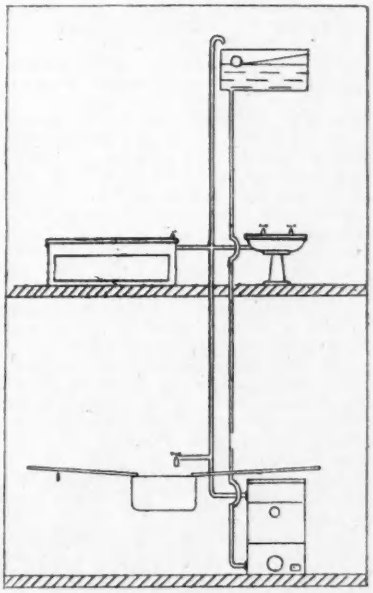
EWART AND SONS (No. 276, Row Q) feature the M.75 sink geyser, which can be used either as a single-point with a spout or as a small multi-point connected up direct to sink and washhand basin taps. Also shown is the M.210 Multi-Point Geyser, providing an immediate and constant hot water supply to bath, basin and sink. Both geysers are fitted as standard with thermo-pilot control valve for safety in lighting and a gas governor, reducing maintenance costs. The stand is designed by Mr. C. Roy Fowkes, A.R.I.B.A., A.M.P.T.I., A.I.B.D.

THE FLUSH DOOR MANUFACTURERS' ASSOCIATION (No. 69, Row D) draws attention to the framework of the Association and its object, which are principally to set up and maintain a standard of construction for the manufacture of flush doors throughout the trade.

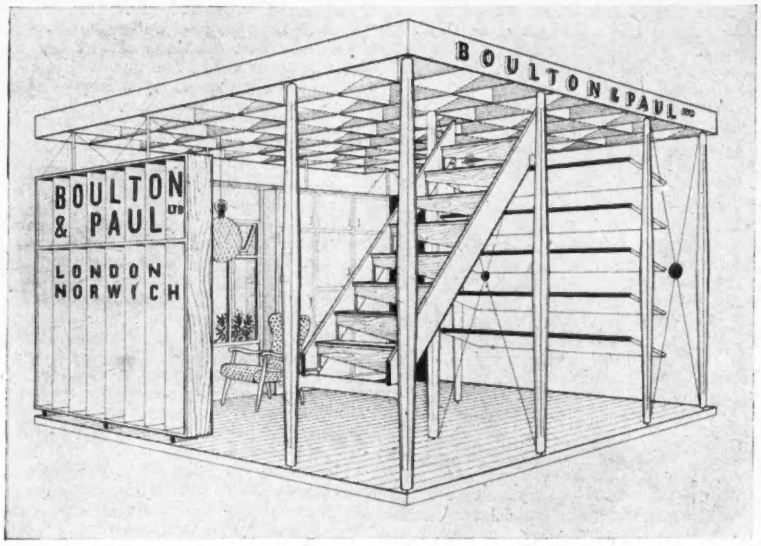
HITCHINS FLUSH WOODWORK, LTD. (No. 238, Row M), exhibit two of their main products, the Flushton panel, finished in a wide range from high quality veneers to distemper; and flush doors, showing the variety of finishes and lights which can be obtained.

On Stand No. 56, Row C, the NORTHERN STEEL SCAFFOLDING AND ENGINEERING CO., LTD., display the "Hodoist" brick elevator. It requires no operator, its operation being by an automatic clutch. The stop level is predetermined, and the usual standard builder's hod is used. Also on view is the "Comal" trailer concrete mixer, Mark II. This has an all-welded frame and is fitted with pneumatic tyres and cushioned road springs. "Norstel" aluminium alloy tubular scaffolding fittings are also on view.

The principal exhibit of THE RIVA FIREPLACE COMPANY, LTD. (No. 62, Row D), is



An Electric Water-heating System (British National Electric's Stand 135, Row G).



Boulton and Paul's Stand (No. 287, Row R). Designed by the Architects' Co-operative Partnership, AA.R.I.B.A.

the Riva four-in-one fireplace, which is designed to accommodate a coal fire, an electric fire, a decorated screen and also a safety screen. Each panel can be operated separately and remain hidden until required.

RONEO, LTD. (No. 132, Row G and Gal. 396), show examples of Roneo office partitions in steel. There are several attractive colour finishes to provide the ideal background for a bright, up-to-date scheme of office equipment. Also on show are Roneo Type "E" factory partitions, fire-resisting steel doors for setting into brick or breeze block walls and linoleum-topped steel counters. Roneo duplicators are shown at work in the gallery.

SHARP BROS. AND KNIGHT, LTD. (No. 268, Row P), feature all kinds of standard joinery, with a full range of standard panelled internal and external doors manufactured to British Standard Specification. Other exhibits of special joinery to architect's details include a section in hardwood of circular bay windows. Photographs are shown of important contracts where specially manufactured joinery has been used.

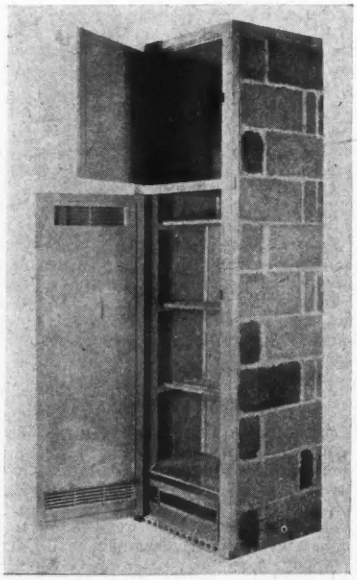
THE SOLID SMOKELESS FUELS FEDERATION (No. 231, Row L) have a stand designed by Mr. Ian Jeffcott, F.R.S.A., F.R.I.B.A. It demonstrates how modern high efficiency domestic appliances make the most economical use of fuel and raise the standard of domestic heat services. The exhibit shows typical examples of modern domestic appliances. These are shown alight and burning various smokeless fuels. There is also a display showing methods of structural insulation and fuel storage.

The exhibit of TRUE FLUE, LTD. (No. 14, Row A), comprises two chimney stacks, one fitted with a boiler convector unit, the other having the more orthodox arrangement of an open fireplace. Both these stacks incorporate a system of convector heating. The stack with the open fire is raised from the floor of the stand, showing the firm's special arrangement whereby cold air is brought in from the outside of the building to feed the fire (thereby avoiding room draughts) and also the heater chamber, which feeds the convector system with hot air.

A hospital dispensary, a bathroom and a cocktail bar provide interesting contrasts in treatments on the stand of WARERITE, LTD. (No. 71, Row D). Each design is based on Warerite laminated plastics which are employed for the surfacing of walls and furniture. The designer of the Warerite stand is Richard Levin.

GLASS, GLAZING AND METAL WINDOWS

JAMES CLARK AND EATON, LTD. (No. 224, Row L), have designed their exhibit to show that although the glass industry is still restricted in production and variety of types the firm can offer a high degree of co-operation in making the best use of that which is available. The stand has been designed by Mr. Cecil C. Handisyde, A.R.I.B.A., who, despite limitations in space, has succeeded in incorporating a good range of practical glass applications.



A new prototype gas-heated drying cupboard (British Gas Council, Stand 273, Row P).

The value of "Insulight" hollow glass blocks is demonstrated in the construction of the office, the walls of which are made entirely of these light-transmitting, heat-insulated units.

PERFECTA GROUP—THE ALUMINIUM WINDOW COMPANY, THE ALUMINIUM LADDER COMPANY, and GRAVITY LADDERS, LTD.—(No. 267, Row P), exhibit all their developments of interest to the industry. Their production of aluminium windows for the last two years has been devoted entirely to the supply of windows for the Government prefabricated aluminium houses. The range of long and short aluminium ladders and steps of every description show that demand can be met in spite of the shortage of suitable timber for ladder making. Finally, Perfecta display their die-cast aluminium sink and draining board, with a mirror finish.

SHIRES AND CO. (LONDON), LTD. (No. 28, Row B), have on view their plastic w.c. cisterns, with non-corroding jointless shells and improved non-corroding silent syphons. High- and low-level types are demonstrated under water. The exhibits include plastic cisterns sprayed in colours to show how the standard black finish may be varied to suit requirements.

PAINTS, WOODWORK AND WALLBOARDS

The stand of ALLIED PAINTS AND CHEMICALS, LTD. (No. 153, Row H), is divided in two parts, one giving particulars of decorators' materials, and the other showing "Bittac" sound deadener applied to architectural and domestic details. The range of paints includes: "Apac" super hard-gloss enamel for the decorator; "Dez" oil-bound washable distemper, and "Dezwyte" zinc undercoat and "Apac" primers; "Bittac" sound deadener is used to eliminate that "tinniness" characteristic of light-gauge sheet metal work, and prevents drumming in larger structures. It gives sheet metal the sound and feel of wood or plastic.

BOULTON AND PAUL, LTD. (No. 287, Row R), exhibit their range of standard joinery, including windows, doors, staircases, kitchen units, etc. The stand is designed by the Architects' Co-operative Partnership, AA.R.I.B.A.

GLIKSTEN DOORS, LTD. (No. 126, Row G), show a range of flush and panel doors and door furniture. The flush doors are built up on a plywood core of lattice design to overcome certain defects normally associated with some types of flush doors. On the same stand, a subsidiary company, Gliksten Building Materials, have an interesting range of building and insulating boards, including the laminated "B.P.-bord."

GEORGE LILLINGTON AND CO., LTD. (No. 37, Row B), exhibit a full range of waterproofing preparations, floor hardeners and dustproofers, bituminous paints and cement paints. These include No. 1 Metallic Liquid, for waterproofing concrete and mixing in all types of cement work; No. 2 Metallic Liquid; No. 2 Stone and Cement Solution, for proofing exterior surfaces of roughcast, etc.; No. 5 Metallic Liquid, a surface hardener and proofer for concrete floors; No. 6 Metallic Liquid and bituminous solution for waterproofing roofs of concrete; and Lillinoid bituminous paint for the preservation of metal against rust and corrosion.

LLOYD BOARDS, LTD. (No. 133, Row G), demonstrate the suitability of Lloyd boards in their application to modern design and usage. Boards of different hardness, texture and colour are employed to illustrate their use in the treatment of surfaces with regard to both finished

appearance and durability under various conditions and in flat and circular work. Also illustrated are methods of fixing and jointing to boards in vertical as well as horizontal positions.

At the stand of WILLIAM MALLINSON AND SONS, LTD. (No. 89, Row E), are exhibits comprising examples of various home-grown and imported hardwoods, among them being a complete home-grown wainscot oak billet and a butt log sawn through and through; also floorings, flush doors, etc. A number of panels illustrate a few of the decorative veneers always stocked by the firm. "Maltas" wall veneer, which can be supplied without an acquisition licence, is illustrated by a fitment containing eight samples mounted on various bases, including marble, glass, etc.

MONTAGUE L. MEYER, LTD. (Stand No. 40, Row C), display a range of their products and facilities for the timber-using industries, including examples of softwoods, English and foreign hardwoods, plywoods and wallboards, doors, turnery and building materials. Photographs show the firm's extensive dock and wharfing facilities.

PAINT REMOVERS, LTD. (No. 38a, Row B), display the "Blue Label" Offkwik paint remover, which is now available to wholesalers, factors and general domestic users. This new paint remover has a wide range of uses as a stripper, varying from the stripping of paint and enamel surfaces to those of cellulose and low temperature stoved enamels.

RUSSELL, MACDONALD AND CO., LTD. (No. 48, Row C), are exhibiting medium and better-class distemper and paint brushes, including new lines of pure bristle and bristle mixtures. Emphasis is laid on the quality of workmanship and materials. Export inquiries are invited.

TOM M. SCOTNEY, LTD. (No. 303, Row 8), display mass-produced precision-made joinery. The stand itself is totally enclosed, and was designed and constructed by the exhibitors. It contains a large photographic mural depicting an aerial view of Scotney's factory. Against this mural is superimposed one of Scotney's standard casement windows, left "in the white" to show the finish and constructional details. The right-hand wall is built into a typical kitchen composed of the firm's standard kitchen units. There are twenty different units in the range, which may be arranged in many different combinations to suit the kitchen of the flatlet or mansion.

Designed by Mr. W. Mollison, A.R.I.B.A., the stand of THE SUNDEALA BOARD CO., LTD. (No. 226, Row L), displays boards in all qualities and thicknesses. These include the whole range, ultra hardboard, super hardboard, ordinary hardboard and medium hardboard. Sundeala insulation (formerly known as Insulwood) is also on view. Panelling of the stand is carried out in the different qualities, including curved panels. The columns flanking the main entrance to the stand are bent to a radius of 9 in., while the partition at rear of stand is bent to radii of 8 ft. and 18 ft. Numerous decorative finishes on Sundeala products can be seen, including high-class cellulose, synthetic and paint finishes, as well as wood veneered boards and plastic finishes.

The exhibit of TENTEST FIBRE BOARD CO., LTD. (No. 116, Row F), falls under two main headings: (a) Specialised construction methods for fixing insulation in steel-framed buildings; (b) Broderick insulated copper roofing. Specialised construction fixing methods include several new fixings developed during the war and now shown for the first time, points of interest including: (1) Duostrip fixing, providing dust-proof joints, (2) Hadley Clip fixing, particularly suitable for lining existing buildings without specialist labour. (3) A variety of new fixing strips for under-purlin fixing, using the minimum amount of steel for each purlin spacing. (4) Aluminium fixing strips.

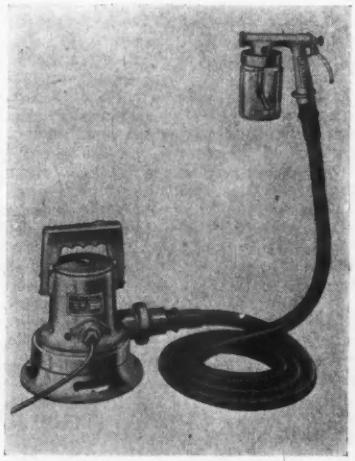
TRETOL LIMITED (No. 156, Row H) include, among other exhibits, a small scale model of the Unity House, designed by Messrs. Kendrick, Findley & Partners, London. A number of Tretol products are incorporated in the house, such as Tretol mastic for jointing, Tretol chlorinated rubber paint for painting of concrete, and Tretol cold bituminous membrane as a damp-proof course. Those preferring actual performance tests will find suitable exhibits on the stand.

Among the exhibits of VULCAN PRODUCTS, LTD. (No. 38, Row B), are some beautifully executed panels of results obtained by the use of "Vultex" plastic paint. During and since the war research has been going on in all branches of the firm's products, with the result that, although outwardly the various paints and so on appear to be the same, the quality is as near perfection as possible. The company exports a considerable amount to overseas countries, and all materials shipped are either specially formulated or adjusted to meet the climatic and other conditions likely to be encountered in the different countries.

MISCELLANEOUS

The stand of THE CEMENT MARKETING CO., LTD. (No. 114, Row F), is designed by Mr. Kenneth Bayes, A.R.I.B.A., and consists of a series of panels illustrating some of the decorative finishes which can be produced with Blue Circle products. The panels radiate from a central enclosed area in which demonstrations of the application of "Snowcem" waterproof cement paint and "Tyrolean Cullamix" are carried out at frequent intervals. The company's technical representatives are in attendance to advise on the uses of Blue Circle Products.

The main function of the stand of B.B. CHEMICAL CO., LTD. (No. 27, Row B), is to demonstrate the advantages of using adhesive compounds which also provide a seal against water, etc. This is achieved by the showing, first of all, of glass-sided tanks in which the glass is secured to the frame with a Bostik glazing and sealing compound, the whole structure being subjected to a continuous water spray throughout the exhibition. Another section of the stand illustrates the use of various types of Bostik adhesives.



"Crystal" Spray Plant (Central Distributing Co., Stand 325, Row T).

On Stand No. 162, Row H, DE LA RUE INSULATION, LTD., show their latest laminated plastic materials, principally "Formica," in a range of colours and finishes. The theme of the exhibit is a technical one, and falls under the following four main headings: (1) Processes of manufacture; (2) Bonding to various types of backing material; (3) Fabrication methods; (4) Applications for this material. The field for this type of material is widespread, and it is claimed that the cost is economical in view of its length of life and negligible maintenance.

EAST HAM TECHNICAL COLLEGE, SCHOOL OF BUILDING (No. 374, Gallery) exhibits typical examples of craftsmanship, technology, design, etc., executed by students in the following trades: Brickwork, Carpentry and Joinery, Painting and Decorating, Plastering, Plumbing. Examples of drawing office work by general building and professional students are also shown. Courses at the School are arranged to prepare students for the Ordinary and Higher National Certificates in Building, and for examinations conducted by the City and Guilds of London Institute, the Institute of Builders, the Royal Institution of Chartered Surveyors, the Institution of Structural Engineers, the Institute of Housing and other professional bodies.

THE EMPIRE TEA BUREAU (No. 383, Gallery) are showing two aspects of their free advisory services: (1) To the builder—how they are prepared to assist in the survey, planning and inauguration of any tea service in the building industry to reduce loss of time through men leaving the site in search of refreshments. (2) To the architect and designer—the assistance given in connection with the initial planning and design of tea services, kitchens and canteens, as an integral feature of any industrial, commercial or recreational building. The stand, entitled "Plan for Tea," tells of the basic planning of a typical tea service for a building site, illustrated by photographs and diagrams.

One of the principal features of the stand of EXPANDITE, LTD. (No. 1, Row A), is a demonstration of the application of "Seelastik" caulking compound, using the "Expandite" caulking gun. "Seelastik" sets to a rubber-like consistency and has innumerable applications. One of its most popular uses is for pointing round the outside of steel or wood window or door frames, between the frame and adjoining masonry.

A full range of "Rufflette" curtain rails and fittings, and the many recent developments of the company, including metal claddings and "fixits" for new housing construction, are exhibited by THOMAS FRENCH AND SONS, LTD. (No. 94, Row E). They are also demonstrating the new "Rufflette" recessed curtain track—the curtain rail that is built into the house as an integral part. The method of building the rail is by a new patented spring-clip. The simple fixing requires only a routed channel in the wood or concrete surface of the lintel. The associate architects for the stand design are Mr. Wells Coates, O.B.E., R.D.I., F.R.I.B.A., and Mr. Nelson Foley, A.R.I.B.A.

GRANGERSOL, LTD. (No. 380, Gallery), exhibit Granger's Solution, Grade 1210, which can be brushed or sprayed on to any porous wall, whether damp or dry, to waterproof it invisibly; Granger's Solution, Grade 125, a transparent proof-

ing for walls in such a position or condition that a "filler" is required to hold back damp; and "Mesowax," for waterproofing and preserving canvas to make it withstand tropical rain, allowing rubbing on the underside without letting water through.

THE RAWLPLUG CO., LTD. (No. 227, Row L), have a display unit comprising all kinds of materials used in modern building contruction into which Rawlplug fixing devices have been inserted. The unit also demonstrates how awkward fixing problems can be overcome. Typical instances are making blind fixings in hollow bricks and tiles and in partition walls constructed from laminated and insulating boards or in plasterboard ceilings.

SEALOCRETE PRODUCTS, LTD. (No. 181, Row J), have a practical show. Examples *in situ* of their hardeners and waterproofers are to be seen, and a full range of coloured cement work, incorporating all types of external finishes obtained by the use of "Sealantone" liquid colours.

THOMAS AND BISHOP, LTD. (No. 210, Row K), feature "Flexo" belt treatment for keeping belts in good condition and ensuring efficient transmission; "Permac" metal-to-metal jointing for leakproof joints for steam, gas, water, petrol, etc.; and "Flexo" tinning compound, for cleaning and tinning dirty metals in one operation.

THE TIMBER DEVELOPMENT ASSOCIATION (No. 261, Row O) emphasises the scientific approach to timber construction. To apply engineering technique to timber structures is the surest way of achieving economy and the best guarantee that timber will hold its own in the future. The T.D.A. puts this realistic attitude into practice, and exhibits some of the work of its Director of Constructional Research. In particular, a new design of roof is featured which aims to help local authorities make the best use of their limited supplies of timber.

Building Exhibition Press Conference.

MR. E. J. SMITH, President of the National Federation of Building Trades Employers, presided at a Press Conference, held in connection with the Building Trades Exhibition, at the Waldorf Hotel, London, on November 13. In the course of a short address Mr. Smith said surely this was the time for builders to see what was on the market in the way of inventions which would help them to play their part even more fully in the rebuilding of Britain. The Exhibition, he considered, was a first-class one.

Furnished Living-rooms.

One of the most stimulating exhibits is that prepared by the Council of Industrial Design (Stand 331-334, Main Hall Gallery), where three typical furnished living-rooms are shown, based on the requirements of three families. These rooms indicate how modern stoves are designed to fit in with present-day furnishing schemes, and the intention is to show the development of solid fuel-burning appliances from the ornate designs of 1875 to the improved appliances of to-day. This development has been the subject of a technical report by a panel of experts. Visitors will be able to record their views.

A Building Quiz.

An opportunity for every visitor to test his knowledge and win a prize, and at the same time make a contribution to the funds of the Building Apprentices' Sports Association (which is doing much good work for London apprentices), is offered by the "Building Quiz," organised by the Building Exhibition authorities. The entry fee is 1s. (which goes to the B.A.S.A. funds) and quiz forms may be obtained at the Exhibition.

FOURTH BUILDING CONGRESS

THE PRESENT AND THE FUTURE

THE Fourth Building Congress opened at the Leas Cliff Hall, Folkestone, on November 18, Mr. Frederick W. Purse, M.I.E.E., M.I.Mech.E., the President, being in the chair. The Congress, which continued on the following day, was divided into four main sessions: "The Present Position," "What Lies Ahead," "Research and Training," and "Problems of Organisation." The first-named two sessions occupied the first day, and we give below a summary of the proceedings.

Factories

Making some suggestions as to what should be done to expedite the factory reconstruction programme, Mr. G. L. GREAVES, A.R.I.B.A., said: In general terms, what we chiefly need is guidance. Guidance on the acceptance of changed technical methods, guidance on material supplies outside the control of the industry itself, and, above all, guidance on wide policy from the Government. In specific terms I suggest the following aids to progress:—

1. That where the Standard By-laws are contravened by new methods, these should be deemed to have been satisfied where the Chief Scientific Adviser of the Ministry of Works approves.

2. That the multifarious requirements of local authorities, factory inspectors, and particularly Health and Fire Departments, should be simplified, condensed, codified and made standard throughout the country, and that their application should be in the control of a single Local Officer with special training and power to use his discretion within defined limits.

3. That encouragement, financial and otherwise, should be given to research in new materials and methods to the end that structurally lighter types of factories are produced.

4. That dissemination of information on these new accepted principles and methods should be as widely undertaken as possible, through the technical Press and exhibitions, to the trade and to industrialists.

5. That there should be greater definition of the materials to be available for building so that intermittent shortages can be avoided and technicians enabled to plan with some certainty that the materials they are proposing in the design stage will be available at the time of construction.

Apart from the above matters, there are one or two easements which would be welcomed by the industry and which are self-explanatory and widely known, and these may be listed as follows: (a) That, assuming a licensing system to be necessary, a less complicated control mechanism might be evolved with a speeding up of decisions. (b) That, arising from (a) above, there might well be an elimination of hindrances arising from interferences to building by other interested Departments. (c) That in the simplification referred to in (a) above, an effort should be made to make the licence and the supplementary permits one and indivisible instead of, as at present, issuing licences and then having to go back for further permits for materials inherent in the licence.

Housing

In an address on "Housing," MR. C. H. WALKER, O.B.E., M.C., F.R.I.C.S., Director of Housing, London County Council, named what he considered to be the four main obstacles to housing, as follows:—

(a) *Output.*—I place this first because nothing has impressed me more during these past two years than the absence in some men of the will to work. That output is well below pre-war level is, however, patent to anyone, even though agreement may be lacking as to whether the deficiency is of 25 per cent. or 50 per cent. Whatever the figure, the fact is incontrovertible. I am—as no doubt you are—looking forward to seeing the results of the working of the incentive payments scheme.

(b) *Concentration.*—There is room for a greater concentration on new housing. This applies especially to London where, although well over 60 per cent. of the building trade labour is occupied with housing work of one kind or another, only one man in four supposed to be on housing is actually engaged on new construction work. There are still many thousands—perhaps as many as 90,000 men—on war damage repair and similar work, but, while this work goes on, new housing construction and other priority work is starved of labour. The L.C.C., e.g., has 12,500 men, but needs at once as many more again, and an even greater number in the next few months. It is to be hoped that the new powers vested in the Minister of Labour will not remain unused in the field of building.

(c) *Conservatism.*—Local housing authorities of all kinds and shades of opinion have displayed this trait—often to the prejudice of housing production. For instance, the natural preference for the traditional type house is often accompanied by an extreme suspicion of all non-traditional projects. Builders and workmen often show the same distrust. I am persuaded that only by the wider use of prefabrication can we quickly achieve large-scale housing production.

(d) *Cost.*—Houses are costing far too much to erect. In London this is particularly so. Just one single comparison must suffice: for £1 worth of work pre-war the cost to-day is £2 14s.! Much of this increase is to be attributed to the rise in wages, introduction of holiday pay, guaranteed week, etc., and to the increased cost in material prices (especially the price of imported materials), but a huge unexplained gap remains to which deficient output, poor site organisation, dilatory arrival of materials on site, etc., have contributed. Unless we can break the vicious spiral of costs, the costs may break the housing drive before it achieves its full momentum.

Schools

MR. C. G. STILLMAN, V-P.R.I.B.A., speaking of the slow start that had been made in the school building programme, said: The local authorities have done everything possible. The delay has been entirely due to the non-supply of building labour and material. The complete uncertainty surrounding the issue of building licences, the fact that the W.B.B. priority granted for schools is practically worthless, the ban on bricks and light steel, the negligible allowance of timber (one standard per 200 children), and the continual chopping and changing about have been the cause of endless delays and additional work and waste of time in the drawing office and on the job. All attempts to obtain a reasonable semblance of job organisation have broken down due

to one failure or another in the supply position.

Whilst we realise that schools must take second place to housing as a matter of general policy, it is senseless to apply second-rate measures to the operation of individual jobs. If a job is of sufficient importance to be granted a licence and be allowed to start, it should be given its full quota of labour and materials.

In the particular case of new schools required to serve new housing estates, the highest degree of priority must be given if these schools are to be ready for occupation at the same time as the houses.

The great need for houses is still uppermost in the minds of the public, and the question of school building has not, as yet, aroused the same amount of interest. Public concern, however, is likely to develop when it is realised that the schools are not receiving the attention required, and this concern will naturally be concentrated, in the first place, upon cases of excessive overcrowding and schools urgently needed for new housing developments.

The public attitude towards effecting, as a matter of urgency, the more general reforms in education, *vide* the 1944 Education Act, which form the greater part of the 15-year programme is not yet clear. In any case, practicability of this programme is a matter which must depend upon economic considerations.

The question of how far the proposals for improving the educational system must depend upon such a large amount of building is, perhaps, debatable. No doubt, a distinction could be drawn between that which is essential and that which is desirable. This would need careful investigation.

It is, of course, well known that about 90 per cent. of the children now entitled to a secondary education attend elementary schools, none of which have the accommodation and equipment to offer a full course in secondary education. Many of these elementary schools, the original British and National schools, the Board schools and the later Council schools, are completely obsolete and unsuited to present-day requirements, even for primary education.

The statutory duty of every Local Education Authority to make available efficient facilities for primary and secondary education for every boy and girl, and for further education for every man and woman in its area, cannot, therefore, be effected under existing conditions. Only 16 per cent. of the voluntary schools have been reorganised into senior and junior schools, and only 62 per cent. of the council schools. In the rural areas, only 20 per cent. of all schools have been reorganised.

Apart from separate schools for primary and secondary education, Local Education Authorities must provide for (a) the needs of children under five, (b) the needs of children suffering from "any disability of mind or body," and (c) the provision of boarding accommodation for pupils for whom education as boarders is considered by their parents and by the Authority to be desirable.

Under the provision in the Act for further full-time and part-time education for persons over compulsory school age, a large number of technical and county colleges are required. To-day's cost of an average technical college for 500 is close on half a million pounds, and a secondary school for the same number, £150,000.

On the other hand, primary schools cost much less because they do not require so many rooms for special instruction.

The subjects which cannot be taught without costly equipment and additional buildings are science and engineering, practical work, art, music and physical education, and the standard of floor space required for these subjects is fixed beyond discussion by statutory order and regulation. We cannot, therefore, effect economies on the chief factor in the cost of school building—*i.e.*, the cubic contents—since no reductions can be made in the number and sizes of rooms.

During the critical years ahead, claims for a high priority in school building must be weighed against the claims of many other types of buildings.

If we cannot afford to give education this high priority, there is little that can be done to relieve it of this heavy burden, unless a simpler form of teaching technique can be devised that is less expensive in building space and equipment.

We have already shed all suggestion of enrichment, and, in some cases, refinement, in our efforts to cheapen the building fabric.

If we continue to make cuts in fabric cost we shall be merely adding to the ever-increasing burden of maintenance.

It appears, therefore, that the principal obstacle to progress will be our inability to build according to the stated requirements of the 1944 Act : that the magnitude of these requirements cannot be reduced appreciably by design technique, and that the immediate means for expediting progress would be to modify the stated requirements.

If this diagnosis is correct, the possibility of effecting such modifications should be examined without delay, and full advantage taken of the present enforced lull in building operations to do this. Any such modification should, however, be of a temporary character and made the subject of review later in the light of prevailing economic conditions.

War Damage and Redevelopment

"War Damage and Redevelopment" was discussed by MR. E. H. FORD, O.B.E., M.Inst.C.E., M.I.Mun.E., M.T.P.I., City Engineer and Surveyor, Coventry, who, after outlining what was being done at the present time, briefly summarised obstacles to progress and mentioned the rehabilitation of the conquered nations and the making good of the devastation of war in our own and other countries; the shortage of food, which saps the energy of people; and unrest in the field of labour, which leads to a diversion of interest and energy from the main tasks in hand. The speaker continued :—

We also seem to have slipped up in many directions, such as the flooding of the home market by an immense variety of electrical appliances without making sure beforehand that we could provide the necessary current to keep these appliances going.

There are many things which can reasonably be done at the present time which would expedite progress in the repair of war damage and of redevelopment.

Everything possible should be done to revivify the will to work and encourage the enterprise and spirit of the people in this country, notably in the building industries and allied commercial undertakings. One finds at the present time a "war weariness" and a weariness of a system of "too much planned control."

The question is, can we look forward to a drop in prices, and to what extent, in the next five to ten years, having regard to the demand for wages in the building industry comparable to those obtained in the factories?

In mentioning the wage problem, I must say it does not appear satisfactory to workpeople in the building trade to find themselves as craftsmen receiving a wage which is so much exceeded by that paid to the factory workers. In places like Coventry this has led to a great deal of unrest and dissatisfaction between the building trade operative outside the factory and his more fortunate neighbours inside.

Until we can get rid of this feeling as between craftsmen in the building and commercial industries, then I do not think we shall find reconstruction go forward at anything like the pace at which it is possible it could go forward even at the present time.

It appears to me that the building trade operative must be regarded as of equal status with other operatives in the country. This indeed used to be so, and even if at the present time a halt has to be called due to the present needs for labour in the export drive, then it is sincerely hoped that the training of additional building operatives and the encouragement of men to put forth their best in reconstruction will not be hindered or lost sight of.

"What Lies Ahead"

A paper contributed by the Congress Committee of the Building Industries National Council on "The General Situation," referring to the subjects dealt with in the morning session, asked the question : In view of the crisis can these various types of work proceed? Must not the whole building programme be revised? Summing up the general position, the paper continued :—

At the time of writing the Government do not seem to have determined whether the total building programme is to be cut or whether the programme is to be rearranged so as to concentrate on work not requiring steel and other scarce materials. By the time the Congress meets, however, some statement of the Government's intentions may have been made. The Government have already announced that there must be a heavy cut in capital expenditure—possibly to the extent of £200 million—including building and civil engineering. But this does not answer the vital question as to whether other building work will be permitted in place of the work which is stopped or whether there is to be widespread unemployment in the building industry, followed by the direction of the men who become unemployed into other industries.

It cannot be denied that this is a time of grave emergency and that if it is necessary to cut capital expenditure and reduce the building labour force this must be done. But in our view the nature of the crisis is such as to require not a reduction in the building programmes but a positive building effort in support of the economic rehabilitation of the country. The crisis, as Ministers have been at pains to point out, is basically long-term in nature; thus, while short-term expedients may be necessary, they should as far as possible be without detriment to the longer-term considerations. The Government's plans for increasing production and encouraging exports all call for a vigorous building programme; this may be illustrated under the following heads : industrial building, building for agriculture, housing, maintenance work.

A large industrial building programme is essential. The building of power stations must continue to receive absolute priority for men and materials. The expansion of steel production which is envisaged by 1951 will involve the erection of new plant and the modernisation of existing plant, and in this connection a considerable

amount of building and civil engineering work will be necessary. The attainment of an increased production of manufactured goods will call for an extensive programme of factory building; in many cases the only practicable way to modernise a factory and to introduce new production lines is to scrap the existing buildings and to build afresh. The Board of Trade Working Party reports provide a mass of evidence on this point, as well as showing the need for building work to improve working conditions and amenities.

The Government have already announced that housing for agricultural workers is to receive special priority. But much more than new houses will be required. A substantial programme of rural public works —water, gas, electricity and other services —is needed, as well as the provision of new and modern farm buildings. Nor in the long run can the problem of rural amenities be overlooked.

Although it is likely that the general housing programme cannot continue to receive the high priority it has been given so far, it cannot be entirely overlooked. There are still probably 400,000 families who have not a separate home of their own or else are living in houses which, but for the war, would have been demolished as slums. Social considerations apart, the present housing situation is a serious limitation upon the mobility of labour which is necessary to overcome the crisis.

No maintenance and repair work has been done on many buildings since 1939, with the result that many buildings will be in grave risk of serious deterioration if maintenance work is still further restricted. Lack of maintenance to domestic property will result in a serious loss of amenity and in some cases may even endanger health. In factories and workplaces maintenance is of the highest importance; bright, clean surroundings have a direct and often considerable effect on production.

Thus under these few essential heads an enormous programme of building work is necessary, even on the most austere view of what the country can afford during the next few years. There is much other building work requiring to be done, some of it (such as schools and hospitals) of a high social priority. Not all this work can be done at once, and it may be necessary to postpone work involving the use of steel and other scarce materials, but it will be evident that there should be no cutting down of the building industry.

A greatly increased supply of materials will be necessary if this programme is to be carried out. The present building and civil engineering labour force is probably well over 90 per cent. of the 1939 figure, but materials production falls far short of this level. The following percentages show the average production over the last three months for which statistics are available in terms of the average pre-war production: Bricks, 60.6; salt glazed pipes and conduits, 62.9; clay and concrete roof tiles, 62.0; plaster (gypseous), 74.1; plasterboard, 129.8; cement, 102.9.

The Labour Position

MR. R. COPPOCK, C.B.E., Hon. A.R.I.B.A., General Secretary of the National Federation of Building Trades Operatives, said: Is it really true that good output requires the spur of threatened or actual unemployment? Those who think so are poor psychologists and must surely have forgotten pre-war experience. If the ever-present fear of unemployment had any social significance at all, as it undoubtedly did have, it was in the direction of retarding rather than stimulating output, for it is perfectly natural for men to do everything possible to prolong a job when they know that its termination means enforced idleness. If output to-day is faulty, it is, I feel, due to the same apprehension that workers still entertain in regard to the possibility of unemployment, as in pre-war years. It is difficult for men accustomed to being "shuttlecocks" on the industrial scene to realise that their fears have become groundless.

I do not subscribe to the view that the workers themselves are invariably blameless in the matter of defective output. But so long have we had the "law" of supply and demand dinned into us that we have almost become convinced of its ethical justification. Those, then, who are responsible for our political and industrial destinies, and our mentors, must not be altogether surprised that their advocacy of such a "law" has been taken to heart by persons now in a position to benefit from it. It may be a sad reflection on human nature that economic activities are dictated by mercenary instead of idealistic considerations, but we have to face facts as they are. A symptom of the spiritual malaise to which I have referred is expressed in the preference a man gives to employment where the rate of pay is higher, irrespective of any other consideration.

The comfortably placed in life have too long assumed the worker to be a special being who alone should be the proper subject of all kinds of orders and decrees. It is not direction that the best of the workers require or need: it is not flattery: it is not cajolery: it is not bribery: it is certainly not bullying. It is simply justice, and justice implies equality. But if there is one thing in the world which is lacking to-day it is equality. One appreciates, of course, the impossibility of getting perfect equality in a very imperfect world, but at least the differences need not be quite so blatant.

The editor comfortably dictating his leaders; the prelate pontifically delivering his sermons; the journalist, the politician, the whole array of well-to-do persons tucked away in their security, have no qualified thiry-two hours guaranteed week. They have a guaranteed salary, which is not subject to output or to the vagaries of the weather, and conditions to match.

A Traditional Material—Timber

Speaking on the uses of timber in building work, MR. PHILLIP O. REECE, A.M.I.C.E., M.Inst.Struct.E., A.M.I. Mun.E., Director of Constructional Research, Timber Development Association, outlined the supply position and went on to say: Whatever policy the Government may adopt, it cannot be disputed that building is essential to reconstruction, and timber is essential to building. In the face of shortages, a system of priorities appears inevitable if first things are to be done first; thereafter it is a self-evident necessity to make the best possible use of whatever material is available. This involves using timber for those purposes for which it is pre-eminently suited and using it in a scientific, as distinct from a traditional, manner to achieve economy.

To give an example—lintols, gutters and storage cisterns are typical of components which, although quite commonly made of timber in the past, could not—except in special cases—be regarded as pre-eminently suitable uses of timber to-day. On the other hand efforts made to introduce substitute materials for the construction of the floors, roofs and staircases of dwelling-houses have not been uniformly successful. It is a commonplace that the advent of a new timber substitute is hailed as news. It is equally a commonplace that the cost of the substitute is not news.

The particular merit of timber as a structural material lies in its high stiffness per unit cost. The modern tendency to reduce design loadings and increase working stresses is giving this quality greater importance as the design of more and more structural components becomes governed by considerations of deflection rather than stress. Timber will invariably prove to be the most economical material to use in situations where loads of varying intensity and short duration have to be sustained, and particularly where the spans, lengths or other dimensions are necessarily large in relation to the loads which have to be carried. For instance, a beam of 12 ft. span may have to carry a load of 100 lb. or perhaps 3 tons, the former representing a ceiling joist in a dwelling-house, the latter a beam in a factory or a warehouse. Now timber may or may not be more suitable than other materials for the latter loading, but it will invariably be more economical for the former.

For the greater part of the last decade, normal free enterprise in the building industry has been suspended while the background of supplies and costs has changed beyond recognition. In these circumstances the development of technique has been deprived of the sharpening influence of normal competitive business—considerations of profit and loss have hardly yet been brought to bear on traditional methods of timber construction.

Since 1937 our supplies of imported softwood have shrunk from over 2¼ to less than one million standards per annum, while the cost has risen from less than £20 to more than £70 per standard. In the same period labour costs have increased by about 50 per cent. With material costs increased in the ratio of 4 to 1 and labour costs in the ratio of 1½ to 1, it follows that the amount of labour which could profitably be bestowed on a cubic foot of timber in 1937 is different from to-day's figure when the raw material is relatively more than twice as costly. It is reasonable to expect that a change of this magnitude would have been accompanied by radical developments in methods of commercial utilisation, but on the whole this expectation has not been realised.

DESIGN OF HEATING APPLIANCES

THE Council of Industrial Design, at the request of the Ministry of Fuel and Power, appointed a small panel of professional experts on the design of appliances for the home, to consider and report upon the design of those appliances scheduled for the housing programme. This panel consisted of Mr. Misha Black, O.B.E., Mr. Joseph Emberton, F.R.I.B.A., and Mr. F. R. Yerbury, Hon. A.R.I.B.A. The main conclusion of the panel was that, with notable exceptions, appliances had not been designed as one whole, but were rather the result of piece-meal modifications to existing models, made over a period of years. The inference is that in many instances an entirely fresh design might now be attempted, at least of the main casting and of those external details which affect the user through eye or hand. It is understood, furthermore, that the various testing stations which have considered appliances under fire may have comments to make on performance which may suggest some radical redesigning. This commentary on current design practice, therefore, probably appears at an opportune moment. Reports by the Committee on Design Desiderata for varying types of heating appliances are obtainable from the Council at Tilbury House, Petty France, S.W.1.

INCENTIVES IN BUILDING

LABOUR CONSTANTS

By "Cain."

THE N.J.C. have agreed in principle to an incentive system of bonus payments proportionate to the results achieved. The system is not "piecework," nor, in fact, "payment by results," because, for his normal output, an employee is paid a flat hourly rate, and, should he increase his normal output, he is to receive the usual flat hourly rate, plus a bonus, which is fixed by the individual employer and agreed to by men in his employ before operations actually commence. Once agreed to, this cannot be adjusted or altered whilst that particular operation is in progress.

The views of employers as to a man's normal output are widely divergent, and many employers feel that the N.J.C. could at least have given a lead in this direction. No doubt associations in the different regions will in due course lay down basic output figures for all trades employed on the erection of permanent and temporary houses. In the meantime the following labour constants may assist employers to formulate their own bonus schemes.

When using the constants, the following points should be borne in mind :—

Generally : The time spent in unloading materials is included in the labour constants given for the particular trade, except in the case of bricklayer, where it is given separately.

It is assumed that a petrol-driven mechanical mixer of 5/3½ capacity is used for mixing concrete and mortar; the operators' time is included.

No allowance has been made for the time spent in erecting or dismantling scaffold.

The labourer waiting on plumber could be an apprentice, improver or mate.

The common brick is assumed to be a Fletton with one frog (4,356 to one rod).

The labour constants given for bricklayer include the plumbing of angles, forming door or window openings and normal cutting.

Should mechanical hoisting be used, the labourer constants for brickwork should be reduced.

It is elementary to state that for an incentive scheme to function correctly on site, the available labour force should be divided into groups, each group to carry out a specific task; sub-division of a group will be necessary on very large housing schemes. Each group must have a leader; the leader should be in possession of the labour constants applicable to the task, and thoroughly understand the meaning of basic output. The employer will, no doubt, convert the labour constants into basic hourly output in order that the employees may more readily understand the term, viz. : (1) excavate over site, etc., 416 hours per yd. sup. stated as 2 sq. yds. per hour, or (7) reduced brickwork, etc., 58.0 hours bricklayer and 29.0 hours labourer per rod, stated as two bricklayers and one labourer with a basic hourly output of 150 bricks. It will be the leader of the group who negotiates with the employer, or his representative, the final settlement should a bonus have been earned.

From the employees' point of view, it is fundamentally important that clarity and simplicity be the keynote of all bonus systems; they will be concerned in receiving a square deal and an increase in their pay packets. The employer, in return, will hope that the minimum output is not less than that used in his price build-up when tendering, will expect better balanced labour gangs, speedier completion, and a consequential saving in site and office overheads.

		Craftsman. hrs.	*Labourer.* hrs.	
(1)	Excavate over site 6 in. deep to remove vegetable soil, wheel, spread and level (n.e. 50 y.r.)	—	.416	per yd. sup.
(2)	Excavate surface trenches and get out	—	2.5	,, cube
(3)	Concrete 1 : 3 : 6 in foundations	—	3.6	,, ,,
(4)	Concrete 1 : 2 : 4 over site 6 in. thick	—	.686	,, sup.
(5)	Hardcore, wheeled n.e. 50.y.r. spread and levelled 6 in. thick	—	.3	,, ,,
(6)	4 in. earthenware drain jointed in cement mortar (1 : 1)	.1	.1	per ft. run
(7)	Reduced brickwork in cement and sand 1 : 3	58.0	29.0	per rod
(8)	,, ,,	.213	.106	per ft. sup.
(9)	9 in. ,, ,,	.14	.071	,, ,,
(10)	4½ in. ,, ,,	.07	.035	,, ,,
(11)	11 in. cavity brickwork in ,,	.164	.082	,, ,,
(12)	Face brickwork	.078 to .106	.039 to .053	,,
(13)	Unloading and stacking common bricks	—	2.0	per 1,000
	,, ,, face ,,	—	2.5	,, ,,
	,, cement and/or lime	—	.5	,, ton
	Mixing mortar, 1 : 3	—	3.8	per rod of bwk.
(14)	3 in. breeze partition blocks	.45	.225	per yd. sup.
	Unloading and stacking blocks	—	.103	,, ,,
(15)	4 in. by 1½ in. softwood plates	.33		per ft. cube
(16)	8 in. by 2 in.softwood first floor joists	.33		,, ,,
(17)	8 in. by 2½ in. softwood first floor joists trimmers	1.4		,, ,,
(18)	4 in. by 1½ in. softwood ceiling joists	.5		,, ,,
(19)	4 in. by 1½ in. softwood rafters (for gable end roof)	.55		,, ,,
(20)	4 in. by 1½ in. softwood rafters (for hipped end roof)	.8		,, ,,
(21)	Softwood struts and strainers ..average	.72		,, ,,
(22)	7 in. by 1½ in. softwood hips and/or valleys	.06		,, run
(23)	1 in. by 1 in. softwood tile battens, 4 in. gauge	3.0		per square
(24)	5 in. by 1 in. wrot softwood fascia	.05		per ft. run
(25)	¼ in. asbestos soffit 6 in. wide	.07		,, ,,
(26)	¼ in. asbestos soffit 12 in. wide	.09		,, ,,
(27)	2 in. by 1 in. softwood herringbone strutting	.12		,, ,,
(28)	1 in. plain edge wrot softwood flooring 4 in. widths	7.0		per square
	,, ,, 6 in.	4.75		,, ,,
(29)	1 in. tongued and grooved softwood flooring 4 in. widths	8.0		,, ,,
	,, ,, 6 in.	5.25		,, ,,
(30)	4 in. by 1½ in. wrot softwood door lining, making and fixing	2.1		lining
(31)	5½ by 1¼ in. ,, ,,	2.25		,, ,,
(32)	Hanging only, internal doors	1.25		per door
(33)	,, external ,,	1.60		,, ,,
(34)	Fixing only 2 in. by 1 in. softwood architrave, including mitres	.019		,, ft. run
(35)	Fixing only 4 in. by ¾ in softwood skirting, including mitres	.033		,, ,,
(36)	Fixing only 2 in. by ¾ in. softwood picture rail, including mitres	.030		,, ,,
(37)	Plaster board, in 8 ft. by 4 ft. sheets, including stopping joints and scrimming	.23	.112	,, yd. sup.
(38)	Sirapite setting coat on board	.30	.112	,, ,,
(39)	Render in cement and sand, 1.4 to bwk.	.25	.212	,, ,,
(40)	Sirapite setting coat on render	.333	.112	,, ,,
(41)	4 in. half round gutter	.09	.09	,, ft. run
(42)	2½ in. rain water pipe	.083	.083	,, ,,
(43)	4 in. L.C.C. medium soil pipe	.17	.17	,, ,,
(44)	½ in. galv. tube laid in trench	.0337	.0337	,, ,,
(45)	½ in. ,, ,, ,,	.0435	.0435	,, ,,
(46)	½ in. galv. tube including short lengths, bends, elbows and connectors fixed to walls	.115	.115	,, ,,
(47)	18 oz. or 24 oz. c.s. glass in sqs. n.e. 1 ft.s. to metal	.17		,, ft. sup.
(48)	,, ,, n.e. 2 ft. sup. ,, ,, ,, ,,	.13		,, ,,
(49)	,, ,, n.e. 4 ft. sup. ,, ,, ,, ,,	.08		,, ,,
(50)	Clearcolle and twice whiten ceilings	.25		,, yd. sup.
(51)	Clearcolle and twice distemper walls	.22		,, ,,
(52)	Rub down and paint 3 oils on metal work	.65		,, ,,
(53)	Rub down and paint 3 oils on metal squares			,, ,,
	Sash squares	2.166		,, dozen
	Large ,,	4.332		,, ,,
	Extra ,, ,,	8.664		,, ,,
(54)	Knot, prime, stop and paint 3 oils to wood	.91		,, yd. sup

NEW INCENTIVE SYSTEM FOR BUILDERS

By F. Russon, F.I.O.B.

NOW that the principle of incentives in the building trade has been officially approved by the Joint Council, a comprehensive description of a system which has been tried out by a building contractor for a trial period may be of general interest.

Any system for incentives must aim at simplicity, be readily understood by the men, and be suitable for operation by inexperienced staff. War-time experience with the Ministry's "Payment by Results" caused many contractors to regard incentives as an "evil" to be avoided, leading as it did to great inequality in the bonus distributed, and incurring many overheads by the amount of site measuring required during the progress of the works.

From experience gained, the system here described overcomes these disadvantages and reduces the administrative costs to a minimum. The essential feature of this system, and where it differs in principle from the "Payment by Results" scheme, is to set a definite target in money corresponding to a clearly defined operation, such operation to consist of a suitable section of the works which can normally be completed by one labour gang in not more than two weeks. This target is calculated and given to the men prior to the work starting, enabling them to form a clearer picture of what is required to earn a bonus, than if the target is given as a unit of measurement. (Few carpenters, for example, will know how long it takes them to fix a cube foot of timber, but will know the time required to roof a pair of houses.) The bonus paid will be an agreed percentage of the difference between the actual cost and the target cost.

Another advantage in setting targets for complete operations is that this method, in the majority of cases, does away with the necessity for site measurement at the end of each bonus period, and enables the scheme to be run by a site clerk.

It is realised, of course, that this ideal is impracticable in a few cases; for instance, it is not always possible to determine in advance the exact cube of excavation to be carried out, but with a little

No. 1063

DAILY OPERATIONAL TIME SHEET.

Site Homecroft Job. No. 158

Day and Date Thursday March 27th 1947.

Gang :- Bricklayers

No. 6 (A) Block No. 3 4

(B) Bonus Unit No. 3 3

Check No.	Workman's Name	Trade	Hours per Operation						Total Hrs.
21	Jones	C.H.	3	5					8
99	Smith	B	3	5					8
36	Benton	B	3	5					8
81	Kent.	IMP.	3	5					8
109	Black	L	3	5					8
111	Green	L	3	5					8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tasks completed, indicated by C (C)			C	C					

REMARKS Brickwork 13 courses.

Signature F. Jones.

Fig. 1.

forethought and adaptation such cases can be reduced to a minimum.

Let us now consider the scheme in detail :—

Preparatory Work by Surveying Staff

First examine the drawings and divide the works up into a series of suitable operations. It is desirable to discuss and agree with the general foreman the sequence in which the contract is to be progressed, and the bonusing units numbered accordingly.

Housing work, being a repetition of a limited number of types, lends itself admirably to this system, about 30 operations sufficing for the house and another 10 for the site works and preliminaries.

With general contract work it is rather more difficult, but

EXPLANATORY NOTES TO FIGURES 1 AND 2

DAILY OPERATIONAL TIME SHEET.

Completed by Team Leader and checked by Time Clerk daily.

Line.
(A) The Block reference number.
(B) The Bonus Unit reference number.
(C) When the particular Bonus Unit is completed, a large "C" is entered under the appropriate column.

Column.
(1) Workman's check number.
(2) ,, name.
(3) ,, trade (abbreviated).
(4)-(8) The hours worked per man for the day under the appropriate heading for the Bonus Unit.
(9) If the man has been "rained off" part of the day, W.T. (wet time) is entered at the head of this column and the hours opposite each man.

Remarks. Information, *i.e.*,
Depth of digging.
Number of courses to dampcourse, etc.

Signature. Team Leader.
Countersigned. Site Clerk.

ABSTRACT AND SUMMARY.

To be filled in by the Site Clerk from the Daily Operational Time Sheet.

Column.
(1) Workman's check number.
(2) ,, name.
(3) ,, trade.
(4)-(21) Hours worked abstracted from "Daily Operational Time Sheet" with the operation sheet reference number at the head of each column.
(22) Total of columns 4-21.
(23) Rate paid to man.
(24) Extension of Columns 22 and 23. This column is added up at (A).
(B) Target for the group of Bonusing Units involved.
(C) Difference between (A) and (B).
(D) 50 per cent. saving payable as bonus to the gang.
(E) Calculation for the bonus rate per shilling of wages earned.
(25) Column 24 expressed in shillings.
(26) Result of calculation (E) in pence.
(27) Extension of columns (25) and (26) representing bonus due to each man.
N.B.—The total of this column should equal approximately the amount at (D).

ABSTRACT & SUMMARY

No.

CONTRACT: Homecroft

LOCATION: Bleeton

JOB No. 158

GANG & No. IN GANG Bricklayers - 6 COMMENCED 27-3-47 OPERATION No. 3.

OPERATION DESCRIPTION Brickwork to Dampcourse. COMPLETED 29-3-47. BLOCK(S) 3-6 HOUSES

CHECK No.	Name	TRADE	ABSTRACT OF WORKING HOURS Sheet Reference Nos. 1063	1064	1065	TOTAL HOURS WORK'D	RATE	COST £	s.	d.	Number of Shilling Share	Approx Pence Per Shilling Share	BONUS PER MAN £	s.	d.
(1) 21	Jones, F.	C.H	8	8	2	18	2/8	2	8	.	48	1.45		5	10
99	Smith B.	B	8	6	2	16	2/6	2	.	.	40	"		4	10
36	Benton C	B	8	4	2	14	2/6	1	15	.	35	"		4	3
81	Kent. S.	IMP.	8	8	-	16	1/-		16	.	16	"		1	11
109	Black G.	L	8	8	2	18	2/-	1	16	.	36	"		4	4
111	Green F.	L	8	8	2	18	2/-	1	16	.	36	"		4	4
(1)	(2)	(3)	(4)	(5)	(6)	(22)	(23)		(24)		(25)	(26)		(27)	

SHARE CALCULATION. (E)

PER SHILLING SHARE BONUS PAYABLE (In Pence) / TOTAL COST (In Shillings) = 306/211 = 1.45

		£	s.	d.
TOTAL COST	(A)	10	11	.
TARGET COST	(B)	13	2	.
SAVING	(C)	2	11	.
TOTAL BONUS PAYABLE 50% OF SAVING	(D)	1	5	6

TOTAL BONUS PAID £ 1 5 6

Extended	Foreman	Checked	Wages

Fig. 2.

TARGET COST COMPUTATION

No. .....

CONTRACT ..... SITE ..... JOB No. ..... DATE .....

OPERN. No.	DESCRIPTION OF TASK AND BRIEF DETAILS OF WORKS INCLUDED	MEASURED WORKS		LABOUR CONTENT				RATE	TARGET COST			GENERAL REMARKS & INFORMATION
		QUANTITIES	DESCRIPTION	CONSTANTS PER UNIT		TOTAL MAN HOURS			£	s.	d.	

Fig. 3.

with careful planning most buildings can be readily divided into appropriate operations.

For the jobbing builder on small estimate jobs, the labour content for the complete job should be determined and the men informed of the total amount of the target cost. (When tendering for future work of a small character, it is suggested that the build-up of the estimates should separate net labour cost from net material cost, the overheads and profit being added at the end of the totals; thus the labour content would be readily available without further work.)

Bonusing Units (or Operations).

Each building or group of buildings can comprise one, or be divided into small sections described as a "bonusing unit (or operation)," with a "calculated target cost" for each unit; for example :—

Bonusing Unit No. 1: Excavate foundation trenches.

Bonusing Unit No. 2: Concrete in foundation trenches.

Bonusing Unit No. 3 : Brickwork from concrete up to dampcourse.

Target Cost Computation.

After the bonus units have been fixed, the target is calculated by taking off quantities for each unit and extending these by appropriate labour constants. These are then priced at current standard hourly rates to give a lump sum total, which becomes the "calculated target cost," and equals the total cost sum allowed to the operatives for the completion of each bonusing unit. The "target cost computation" form illustrated has been designed to standardise the records, and should be prepared in duplicate, one copy being sent to the site. (Fig. 3.)

It will be found advisable to use a labour constant which includes all incidental labours of the particular job in hand, so that only the major items require to be measured. For example, in housing, a labour constant can be fixed for brickwork to include all faced work, reveals cutting, building in lintols, frames, etc.

Generally, the target cost for each bonusing unit should include for the unloading of the materials involved. Special circumstances may arise where excessive work is incurred or the materials have to be double-handled, and an allowance should be made for this by an increase on the target.

Labour for mortar mixing and for saw mill, etc., should be apportioned between the various teams concerned.

For further information on constants of labour (or man-hour components), the following books can be of service, and will assist in fixing suitable man-hour components :—

(a) "Estimating for Buildings and Public Works," by B. Price Davies.

(b) "How to Estimate," by John Rea.

(c) Ministry of Works "Payment by Results," 1944 Edition.

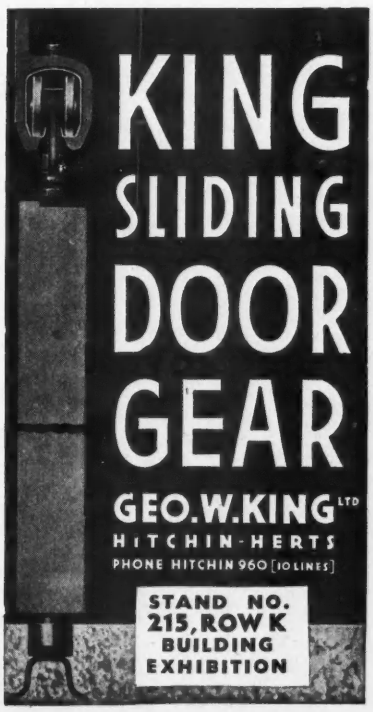
These publications must not be taken as a complete answer to the correct constants of labour, and are only suggested as a guide to assist small builders with little experience of detailed estimating. The only reliable constants are those based on the individual builders' recorded data supplied from experience of actual costs.

The basis of output on which the builder must compute his target cost is full of difficulties, but a lead has been given by the National Joint Council under one of the heads of agreement which suggests that the target set should enable the operatives to earn a bonus of 20 per cent. over the standard hourly rate.

From this it could be assumed that the operative is expected to give an 80 per cent. productivity for his new rate, and would earn a bonus on all work executed above the 80 per cent. It therefore follows that the average labour constants should approximate to four-fifths of the operative's pre-war output. This factor is a most important one, and must be determined by local circumstances and conditions. In some districts output is high and in others exceedingly low.

On repetition works, such as housing, an inherent difficulty is to fix the targets so that the men may earn a reasonable bonus in the first few weeks without getting an excessive amount later on when they have become used to the repetitive work. It may be observed that failure to earn bonus at the end of the first period, after the men have tried, completely discourages them, and they tend to lose all interest in the idea of incentives.

This procedure requires tactful application and a sound understanding with the operatives.



Site Work

1. Staff.—The scheme can be run efficiently with one clerk to about a hundred men on one contract. His duties are to take spot checks that the men are actually working on the given bonusing unit, abstract the hours from the daily operational time sheets, and calculate the bonus payable. When a lump sum target cannot be fixed in advance for the operation, he is required to measure the work executed and work out the target from the labour constants given by the surveyor.

2. Labour.—The labour force on the site is divided into suitable teams or gangs, each with a leader responsible for recording the time spent on the various bonusing units, which he records on the daily time sheet for all the men in his gang.

The men should each have a check card for clocking in the normal way.

3. The Daily Operational Time Sheets.—A duplicate book of "daily operational time sheets" of the type illustrated (Fig. 1) is issued to each gang leader, in which he enters his men's check numbers, names and trades. He heads the columns on the right with the reference number of the block and bonusing unit on which his gang are working, and enters the hours worked opposite each of the men's names.

When a bonusing unit is completed, a large "C" is entered in the square at the bottom of the column to indicate this, and it is important that this be verified on the site by either the foreman or clerk before bonus is paid and before further work is allotted. The gang leader, when clocking off at night, hands the completed form to the site clerk, who should check the total hours against the time sheets and investigate any discrepancy.

4. The Abstract and Summary Form.—The site clerk must periodically abstract the hours from the daily operational time sheet on to the abstract and summary form (see Fig. 2), using a separate column for each day. When the operation is completed the hours are totalled up and extended by the rate paid to the men, and the total cost entered at the bottom. Reference is then made to the target computation sheets and the appropriate target cost entered, and the saving and total bonus payable completed.

The bonus paid to each man has to be proportionate both to his rate of pay and the hours he has worked. A simple method to give this result is by considering the bonus due for each shilling of the cost of the operation. This is arrived at by dividing the total bonus payable in shillings by the cost in pence, giving a

constant in pence for each shilling of wages paid. Space is provided for this calculation in the bottom left-hand corner of the form. The individual bonuses are then worked out by converting each man's wages into shillings and multiplying by the bonus rate in pence. If the latter is given to the nearest farthing, a standard ready reckoner can be used for all the calculations, thus saving considerable time, and the result will be sufficiently accurate for the purpose.

5. BONUS DISTRIBUTION.—Whilst every builder should give all his operatives a fair chance of earning a reasonable bonus, it should be emphasised that one of the heads of agreement laid down urges that once a target (i.e., total man-hours for a bonusing unit) is set, is cannot be varied, thus precluding a period of trial and error.

It is essential, therefore, that the builder does not distribute the whole of the saving effected, but only a fair proportion.

If it is found that the men, after a fair trial, cannot earn a reasonable bonus on a 50/50 basis, then the percentage distributed to the operatives may be increased, always remembering that the employer must retain sufficient to cover the administrative costs and to provide for a reduction of future tenders.

6. GROUPING OF BONUS PAYMENT.—It will often be found an advantage to group all bonus payments for one gang over a period of two weeks or more. In this case, the abstract and summary forms for the individual operations will be completed as described only up to the column headed "Total hours worked." These totals (for each man) for all operations completed in the period will be transferred to a *master* abstract and summary form (of the same layout, but preferably on a different coloured paper). Similarly, the individual targets are added together and the sum entered on the master sheet. The bonus payable is then worked out in the usual way. By this method the men are given an average bonus over the period.

7. INTERIM PAYMENTS OF BONUS.—In certain cases it may not be found convenient to sub-divide the whole of the works into operations small enough to enable the men to draw a bonus every two weeks, and an interim payment may have to be made. For this purpose use an abstract and summary form, clearly endorsed "Interim Payment" in the same way as described before, but only enter a percentage of the target corresponding to the actual work carried out. The final bonus, when the operation is completed, would be worked out with the remainder of the target.

General

This concludes the description of an incentive system, and although part of the above may sound rather involved on first reading, it has been found in practice to be both simple in operation and to give the desired results. It need hardly be said, however, that any system stands or falls by the labour constants chosen to give the target, and greatest care must be exercised to get these right from the start, otherwise most uneven results may follow.

The foregoing is not submitted as an incentive system to end all schemes, but as an illustration and guide to builders who seek ideas on the subject or have not yet formulated their own arrangements to meet the problems which will undoubtedly have to be faced by building organisations, large and small.

The subject can be most controversial, but, however unwelcome the innovations may be, if the builders exert the extra amount of effort at the inception, a well-organised application of a scheme of incentive payments can prove beneficial to the employer as well as his operatives.

"SMALL HOUSES AND BUNGALOWS"

INTEREST in the design of small houses and bungalows has never been greater than at the present time. Unfortunately, the directive of the Ministry of Health to local authorities to withhold licences for the erection of houses and bungalows for sale is still in force, but this in no way detracts from the topicality and value of "Small Houses and Bungalows," recently published by *The Builder*, Ltd.

Most of the houses and bungalows illustrated in the book have been built since the end of the war and thus conform with the regulations regarding prices and materials which have been in force from that time. All the dwellings illustrated have been designed by or under the supervision of architects. Care has been taken to include a wide variety of designs showing alternative arrangements of accommodation, especially with regard to the numbers and sizes of bedrooms and the disposition of living- and dining-room space. Many of the plans which accompany each dwelling illustrated give an indication of the modern equipment and accessories with which the kitchens are fitted. Several of the new methods of construction which have been introduced in recent years are also represented, and details are given of some of the principal materials used.

The book successfully demonstrates the high quality of skill and workmanship which the architect of to-day can achieve despite hampering controls and restrictions.

The price of the publication is 4s. (4s. 6d. by post), and copies are obtainable from *The Builder*, Ltd., The Builder House, Catherine-street, Aldwych, W.C.2.

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IN PARLIAMENT

Central Land Board.

MR. NALLY asked the Minister of Town and Country Planning whether he could make any statement about the establishment of a Central Land Board.

MR. SILKIN replied: The Secretary of State and I have appointed a Board. With the concurrence of the Chancellor of the Exchequer, the Secretary of State for Scotland and I have invited the chairman and members of the War Damage Commission to accept appointment also as members of the Central Land Board. Two of the members have been unable to take on the new appointment, but I am glad to say that the chairman, Sir Malcolm Eve, and the other members have accepted.

A statement issued by the Minister reads: The Secretary of State for Scotland and I are required to appoint a Central Land Board for the purposes of the Town and Country Planning Act, 1947, and the corresponding Scottish Act. The main provisions of the Acts do not come into operation until an appointed day which will not be earlier than April 1 next; but as a good deal of preliminary work has to be done it is necessary to appoint the Central Land Board straight away.

The Government are naturally anxious, particularly at the present time, to make the minimum demands on manpower and accommodation and, with the concurrence of the Chancellor of the Exchequer, the Secretary of State and I invited the chairman and the members of the War Damage Commission to accept appointment also as members of the Central Land Board.

The Secretary of State and I have accordingly made the following appointments: Sir Malcolm Eve to be Chairman of the Central Land Board; and the following to be members: Miss Myra Curtis, C.B.E., Sir George Etherton, O.B.E., Sir Basil Gibson, J.P., Mr. H. W. Guthrie, K.C., Mr. A. Macdonald and Mr. J. R. Rutherford, C.B.E., J.P.

The appointments are for the period ending March 31, 1948 The existing appointments as War Damage Commissioners of the individuals concerned expire on that date, and later on we will consider whether the arrangements should continue or whether other arrangements should be made.

I want to make it clear that the starting date for the work of the Central Land Board in relation to the public is not the date of the appointment of the Board, but the appointed day under the Act, which as I have explained, cannot be before April 1. The Board will not be in a position to deal with correspondence or inquiries for some time to come, and the Secretary of State and I will arrange for a further public announcement to be made when they are open for business.

Housing Programme.

MR. LONGDEN asked the Minister of Health if his attention had been called to the widespread belief, even among building operatives themselves, that house building would come to a standstill after the lapse of about a year; and if he would reassure the public by issuing a full and up-to-date statement on the matter.

MR. BEVAN said he saw no reason for this misapprehension. He referred to the statement made by the Minister of Economic Affairs on October 23.

Aluminium Houses.

MR. D. J. WILLIAMS asked the Minister of Health how many aluminium bungalows for miners had been made available for the mining areas; how many were to be erected in South Wales; and what factors governed their allocation to the various local authorities.

MR. BEVAN said that 6,779 permanent aluminium bungalows had been allocated to mining areas, and of those, 1,115 would be erected in South Wales. These bungalows were allocated to local authorities where there was urgent need for houses for special classes of workers.

Rural Rents.

The MARQUESS TOWNSHEND asked what were the means of deciding the rent to be paid for houses built by local authorities and on which the agricultural subsidy was being paid.

LORD HENDERSON said under the Housing Act of 1936, local authorities were empowered to make such reasonable charges for the tenancy or occupation of their houses as they might determine, provided that they took into consideration the rents ordinarily payable by persons of the working classes in the locality. Those provisions applied to houses in respect of which the special standard subsidy was paid as to other local authority houses.

D.S.I.R. Publications List.

Recently published is "Government Publications, Sectional List No. 3—Department of Scientific and Industrial Research." The list is revised to September 30, 1947, and copies and the publications listed therein are obtainable from H.M. Stationery Office.

ENGINEERING SCOPE FOR THE FUTURE

SIR R. HETHERINGTON'S PRESIDENTIAL ADDRESS

REFERENCE to the contribution which the engineer had made and was making to the improvement and maintenance of the public health of the nation was made by SIR ROGER HETHERINGTON, C.B., O.B.E., M.A., in the course of his presidential address to the Institution of Civil Engineers on November 4.

Sir Roger, after describing the early methods of supplying water to towns, described what might be called the major contributions of the engineer, namely the invention of the steam engine, the introduction of steam-driven pumps or the later development of pumps driven by electricity or internal-combustion engines, the production of the cast-iron pipe and the introduction of filters. These changed the whole system of supplying water and made it possible to supply not only larger quantities but also a great improvement in the quality of the water supplied. Great scope still existed for the extension of piped supplies to areas not now having that service and the statement in the recent White Paper on "A National Water Policy" that water supplies should be available to sizeable groups of houses, might be taken to mean that piped water should be taken to groups of about 20 houses or more.

When the general layout of these extended schemes came to be considered, no general rule could be laid down for the type of design. In some cases a fairly wide-flung scheme was desirable, supplied from a central source; in other cases it was clearly desirable to have small schemes fed from quite local sources. The principle to be adopted must vary with the circumstances of each case, and especially with the geological formation of the area and the distribution of the population. In any case, one general overriding principle which no one could afford to neglect was that local resources must be used before supplies were brought in from long distances; and even when they were of necessity brought in, they should be used to supplement and not to supersede the local supply or supplies.

With regard to drainage, the speaker went on to say that the result of developments in sewage purification was that the engineer was today able to discharge from well-designed and well-managed sewage-purification works an effluent which was clear, inodorous and non-putrescible and was often better than the water into which it was discharged. While no finality had yet been reached in the improvement of design in purification work, one of the most urgent problems was how best to deal with the sewage of a small hamlet or group of houses. The solution in thinly populated and scattered areas lay in the installation of small local works of a very simple design. It was not a practical proposition to construct large wide-flung schemes such as were often both justifiable and desirable in the case of water supplies, because not only was the cost of long connecting sewers receiving no additional sewage en route financially practically impossible, but they gave rise to septic action in the sewage.

New British Standard.

The British Standards Institution has published "B.S. for Mixing Valves (Manually Operated) for Ablutionary and Domestic Purposes, No. 1415:1947." Copies can be obtained from 28, Victoria-street, S.W.1, price 2s. post free.

REDEVELOPMENT IN EAST LONDON

DECLARATORY ORDER FOR 1,300 AREAS

A STEP forward in the implementation of the County of London Plan is represented by the decision of the Minister of Town and Country Planning, Mr. Lewis Silkin, M.P., to make an Order declaring approximately 1,300 areas in Stepney and Poplar subject to compulsory purchase for redevelopment by the L.C.C.

The area covered by the L.C.C. application—the first made in the County of London—was 1,945 acres, but certain less severely damaged areas are to be excluded, as well as railway tracks, gasworks and canals, which are unlikely to be disturbed. In his letter to the L.C.C. the Minister made it clear that his decision (under the Town and Country Planning Act, 1944, which dealt mainly with war-damaged areas) did not mean that the larger area should not be redeveloped as a whole. It meant only that the Minister was not satisfied that all the land could be said to have sustained war damage or was adjacent to land so damaged. He trusted that the Council would continue to plan for the area as a whole; and indicated that in this connection they would, no doubt, have regard to their powers under the Town and Country Planning Act, 1947, to designate areas which needed to be developed or redeveloped as a whole for any reason, and not only because they had sustained war damage.

The L.C.C. propose to develop the area by grouping communities in neighbourhood units at a reduced residential density with due provision for open space.

Employment Figures in Building Industry.

According to the latest figures issued by the Ministry of Labour and National Service, the total number employed in the building and civil engineering industries in September this year was 1,367,000. This figure is comparable with 1,359,000 in August and 1,310,000 in mid-1939.

PLANNING DEVELOPMENT ABROAD

INAUGURAL LECTURE OF NEW SERIES

PLANNING lessons or inspirations gained from abroad in the past were mentioned by MR. G. L. PEPLER, C.B., P-P.T.P.I., F.R.I.C.S., on November 12 when he gave an introductory lecture of a new series on "Planning Development Abroad," arranged by the Town and Country Planning Association.

The speaker said: "The Housing, Town Planning, etc., Act, 1909, came from 'The Example of Germany,' by T. C. Horsfall. Inigo Triggs' book, 'Town Planning,' published in 1909, contained many plans of 'places' and gardens, examples of classic art in France and Italy and elsewhere. This was shortly followed by Raymond Unwin's 'Town Planning in Practice,' in which he drew largely on Camille Sitte. This great book, more comprehensive and perhaps both more practical and romantic than that of Triggs', was translated into many languages. Last, but not least, Patrick Geddes, our first exponent of the sociological basis of planning, acknowledged his indebtedness to the Frenchman, Le Play.

"In 1910, the R.I.B.A. staged our first International Planning Exhibition at the Royal Academy, and that was made notable by the magnificent plans and perspectives of Daniel Burnham from Chicago. Also one has a vivid recollection of the drawings of fly-over junctions, traffic roundabouts and double-decked streets, designed by Monsieur Eugene Henard, of Paris.

"I have already referred to 'The Example of Germany,' and it is only fair to remember that we learnt a lot from that country in the past, before Hitler destroyed local initiative. Their common law facilitated planning, and Lex Adices provided the means for pooling plots. While most of their plans were wildly extravagant in street space, they secured the orderly development of their towns, and mastered the art of adding new cloth to old garments, as witness Nuremburg. Also, later, in the Ruhr, Dr. Robert Schmidt provided an early example of effective regional planning.

"From U.S.A., following the Great Exhibition at Chicago, came, under the inspiration of Daniel Burnham, Frederic Olmstead and others, the idea of the City Beautiful. Much later, the National Resources Board, created by Franklin D. Roosevelt and chaired by his uncle Delano, greatly inspired national survey and planning in this country, although it failed to carry the day in its own. And still later, we have the example of the Tennessee Valley Authority carrying out regional works and regional planning on a grand scale.

"From Sweden, which had early planning laws, and where, years ago, kings had provided some towns with their land, we learned, *inter alia*, the value of land-ownership as a means of securing positive planning. And from Calcutta, we learned the value of central land purchase as a prelude to reconstruction.

"From Holland came the contribution of the magnificent studies and plans for the development of Amsterdam and its environs; from Denmark the example of coastal preservation; whilst, immediately after the First World War, France adopted a planning law which filled us with admiration, although we suspected that it might be more honoured in the breach than in the observance.

"We learn from each others' set-backs, just as much as from their or our successes."

Asking the question: "What do those abroad think of us?" the speaker went on to say that from many discussions with planners and administrators in other countries he would say that they considered these to be among our more valuable contributions:—

1. Ebenezer Howard's practical exposition of the idea of the garden city and the examples he inspired at Letchworth and Welwyn.

2. Our preference for the single-family house and the quality of our housing schemes in comfort and openness, if not always in architectural composition.

3. Our tolerance, shown, for example, in the willingness of men and women of all shades of political opinion and with different religious views, to work together for a common object such as good housing or planning; and latterly:

4. The valour of our citizens in beginning to plan for reconstruction before the bombs had ceased to fall; and

5. Our courage in tackling the thorny problem of compensation.

NEWS ITEMS

Geneva Tariff Agreement.

A White Paper giving a report on the Geneva Tariff negotiations and on the General Agreement on Tariffs and Trade has been published. Copies of the Schedules giving details of the new tariff rates are available for consultation at Chambers of Commerce and offices of the Federation of British Industries throughout the country.

Domestic Solid Fuel Appliances.

The Ministry of Works wishes to draw attention to the fact that domestic type solid-fuel burning, heating and cooking appliances of cast-iron or steel are subject to the Control of Building Materials (No. 1) Order, 1947 (S.R. and O., 1947, No. 1698). The arrangements for priority distribution (W.B.A.) prescribed in the Order must, therefore, be observed in the sale or purchase of proprietary appliances of these descriptions.

"Enterprise Scotland, 1947."

When the "Enterprise Scotland" Exhibition closed on October 18, 456,293 visitors had passed through the turnstiles. These visitors included trade buyers from 21 countries. Speaking to the last visitors just before the close of the exhibition, Sir Steven Bilsland said that the exhibition had displayed the enterprise of Scottish manufacturers and the skill and craftsmanship of Scottish designers and workers. So long as Scotland possessed the will to work and the craftsmanship and enterprise which had created the goods in this exhibition, Scotland could face the future without fear.

Exhibition Amalgamation.

Negotiations are now in progress for the amalgamation of the Public Works, Roads and Transport Congress and Exhibition, and the Public Health and Municipal Engineering Congress and Exhibition, whereby it is intended to organise a combined Congress and Exhibition to be held at Olympia in November, 1950. Pending completion of these negotiations and in collaboration with the Public Works, Roads and Transport Congress Council, arrangements are being made for the programme of next year's Public Health and Municipal Engineering Congress to emphasise to the greatest possible extent the engineering aspects of the many services vital to the maintenance of the public health.

Cornish Granite.

The Cornish and Devon Granite Masters' Association's Handbook for 1947, tells in detail, with numerous illustrations, the story of granite as a building material. In the first chapter Mr. C. E. Leese, B.Sc., vice-president of the Royal Geological Society of Cornwall, discusses the granites of Cornwall. Subsequent chapters deal with quarries and quarrying and dressing granite.

Mr. A. S. Knott, A.R.I.B.A., contributes an historical note on "Granite in Architecture," while Mr. J. Brebner, M.I.Struct.E., and J. W. Lorraine, M.I.Struct.E., describe the uses of Cornish granite in civil engineering. Altogether an engrossing little volume, and the Association is to be congratulated on its production.

Development in Nigeria.

A recently published report (Sessional Paper No. 10/1947) on progress of development and welfare schemes in Nigeria contains an account of the General Progress of Development and Welfare Schemes for the period 1945-46. Though shortages of staff and equipment have caused delays, progress is definitely being made, states the report. A total of £308,025 has been spent during the period under review and recurrent expenditure amounts to £37,020. Between 1944-46, £81,015 was spent on road development, exclusive of a considerable sum from Nigerian funds for Public Works Department undertakings. A total of 108 miles of road, very necessary for the further opening up of the country, was completed and opened to traffic; £31,347 was expended during that period on rural water supplies, and, during 1945-46, £21,256 for urban water supplies. New installations of electric light and extensions of existing undertakings have in 1945-46 used £2,637. Difficulties were experienced in the recruitment of European staff and the delivery of plant in telecommunications, and out of a free grant of £230,000 for a period ending in 1948-49, only £1,097 has so far been spent. Some of the schemes have been launched only since the end of the war, but many are a continuance, with increased funds, of work begun in the early war years or in pre-war days.

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Purchase Tax Increases.

By resolution of the House of Commons the rates of Purchase Tax are increased as follows with effect from November 13:—All goods liable at 16 2/3 per cent. become liable to 33 1/3 per cent.; all goods liable at 33 1/3 per cent. become liable to 50 per cent.; all goods liable at 66 2/3 per cent. become liable to 75 per cent.; all goods liable at 100 per cent. become liable to 125 per cent. The only exceptions are motor-cars and motor-cycles, for which the rates are unchanged. The increased rates apply to goods which are delivered on sale, or appropriated to retail trade or similar purposes by a registered manufacturer or wholesaler on or after November 13.

THE SCOTTISH BUILDER

BUILDING WAGES

THE Scottish National Joint Council for the Building Industry at a meeting held in Glasgow on November 13 resolved as follows:—

(a) *Wages*: That the wage rate of craftsmen be increased to 2s. 9d. per hour (with proportionate increase to 80 per cent. to labourers, *i.e.*, to 2s. 2½d.), to take effect as from November 17, 1947.

Incentives: This increase is granted in the hope that it will act as a spur to increased production and in an effort to create goodwill in the industry and carries with it the right to the employers' side of the Council, if they so decide, to initiate a scheme of incentives in joint consultation with the operatives.

(b) That all statutory amendments intimated by the employers and operatives be withdrawn.

(c) That this settlement entails that no amendments directly or indirectly raising the wage status or involving adjustments in existing financial payments to workmen shall be initiated by the employers or operatives that could take effect before February 1, 1949.

(d) The Council agreed that the terms of settlement arrived at in England in relating the wage rate to the new retail prices index of the Ministry of Labour should also apply in Scotland.

(e) The Council agreed on the principle of terminating any separatist agreements and remitted to a joint committee to examine such agreements with a view to bringing them within the scope of the Scottish National Joint Council.

NEW BUILDINGS

Crawford.—Hotel, garage and offices are to be erected from plans by Stewart and Paterson, 110, Blythswood-st., Glasgow.

Glasgow.—Alterations and additions at Kelvinhaugh-st. are to be carried out by Barclay, Curle and Co., Ltd., Clydebank Shipyard, Whiteinch.

Glasgow.—Corporation housing scheme proposed at Hillend-rd., for which the architect is Ronald Bradbury, 20, Trongate, Glasgow.

Glasgow.—At Haron-st. and Dalmarnock-rd. will be erected new buildings by W. and J. Martin, Ltd., 63, Braswick-st., Glasgow; at Helen-st., Govan, will be erected new buildings by James Bowen and Sons, Ltd., 45, Pitt-st., Edinburgh.

Glasgow.—School buildings to be erected at Adelphia-ter. and St. Cuthbert's School, for which the architect is John McNab, 129, Bath-st., Glasgow.

Lanark.—Reconversion scheme and additions, for new hotel, etc., and car park proposed at Lakeside, for which the architects are A. Cullen and Co., 92, Cadzow-st., Hamilton.

Motherwell.—Motherwell and Wishaw Dean of Guild Court approved of the following plans: Motherwell and Wishaw T.C. to erect 25 aluminium three-apartment houses at Watling-st., £22,500; Anderson and Robertson to extend factory building at Factory-rd., at £17,350; Anderson, Boyes and Co., Ltd., Flemington Electrical Works, to extend canteen at £4,000.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

NOVEMBER 26.

†***Bromley T.C.**—Repairs to houses at Greenway, Mons-way and Broom-cl. B.E. Dep. £2 2s.

NOVEMBER 28.

†**Arbroath Infirmary.**—Work in various trades for new maternity hospital and nurses' home. Johnstone and Baxter (L. and A.), 49, Meadowside, Dundee.

DECEMBER 1.

Beckenham T.C.—Repairs to houses at Elmers End estate (Contract No. 3). B.E. and S. Dep. £2.

Southend-on-Sea C.B.—Alterations and additions to lavatory accommodation at 49, Alexandra-st. B.E. Dep. £2.

Southend-on-Sea C.B. — Erection of main workshops at London-rd. Schools, Municipal College. Architect to Ed. Committee, 30, Alexandra-st. Dep. £2.

Stepney B.C. — Electricity sub-station near Cephas-st. B. Electrical E. and Manager, 27, Osborn-st., E.1. Dep. £2 2s.

DECEMBER 2.

Frome R.D.C.—8 dwellings at Wells. J. Rogers, Architect, Radstock, near Bath. Dep £1 1s.

DECEMBER 3.

Easingwold R.D.C.—15 pairs of Airey houses with outbuildings, paths, fences and drainage at Galtres estate. Needham and Thorp (F. and A.), 6, High Petergate, York. Dep., £2 2s.

Lindsey C.E.C.—Canteen at Sibsey Free School. A. R. Clark, County A., County Offices, Lincoln.

Oxon C.C.—Canteen kitchen and dining room at Wheatley Voluntary Primary School. G. R. Hutton, County A., 3, Becket-st., Oxford. Dep. £2 2s.

DECEMBER 5.

Billericay U.D.C. — (a) 8 Airey houses at Pound-la., Laindon; (b) 14 Airey houses at Woolshots-rd., Wickford. H. B. Mayhew, F.I.A.S., S., Council Offices, High-st. Dep. £2 2s.

Coleraine.—24 houses at Garvagh, Co. Londonderry. W. and M. Given, Architects, The Diamond, Coleraine. Dep. £3 3s.

***Huntingdon E.C.**—Canteen kitchen and dining room and sanitary accommodation for County Primary School, Warboys. T. H. Longstaff, County S. and Architect, Walden House, Huntingdon.

DECEMBER 6.

Maldon R.D.C.—6 north aspect and 6 south aspect Airey houses with site works, etc., at Great Totham. S., Council Offices, Wartz-rd., Maldon. Dep. £2 2s.

Wilton.—150 houses for Chemical Industries, Ltd., at Wilton Castle, Lackenby estate. Kitching and Co., Chartered Architects, 21, Albert-rd., Middlesbrough.

DECEMBER 8.

***Hemel Hempstead T.C.**—Conversion of Chaulden House, Chaulden-la. into s.c. flats. L. de Soissons, A.R.A. (F.), Midland Bank-chbrs., Welwyn Garden City. Dep. £2 2s.

Strabane R.D.C.—56 houses with roads and sewers at 2 sites. W. S. Moody, C., Union Office, Strabane. Dep. £2 2s.

DECEMBER 9.

***Brentford and Chiswick T.C.**—Rebuilding caretaker's cottage, Beverly-rd. infants' school, Chiswick. B.E. and S. Dep. £2 2s.

Cheshire C.C.—Temporary classroom accommodation at Bebington, Stanton-rd. County Primary School. E. M. Parkes, County A., The Castle, Chester. Dep. £2 2s.

Cheshire C.C.—Dining room and servery at Hyde, Flowery Field Modern Secondary School. E. M. Parkes, County A., The Castle, Chester. Dep. £2 2s.

Norfolk E.C.—3 permanent classrooms and cloakrooms at Hellesdon Modern Secondary School. F. G. Limmer, Ed. Architect, Stracey-rd., Norwich. Dep. £2 2s.

DECEMBER 10.

Cheshire C.C.—Reinstatement and completion of construction of Sale Cecil-ave. Modern Secondary School for Girls. E. M. Parkes (F.) County A. Dep. £2 2s

"THE BUILDER" PRICES

SALT GLAZED PIPES AND CONDUITS

The Minister of Works has authorised members of the National Association of Manufacturers of Salt Glazed Pipes and Conduits to increase the maximum selling prices as from November 10, by an addition of five points to the plusages on standard list prices. This is to cover the recent rise in the price of coal and in railway freight charges.

DECEMBER 12.

Skibbereen U.D.C.—10 houses at Upper Bridge Street. P. Murray. Acting T.C., Town Hall. Dep. £1 1s.

DECEMBER 13.

Cornwall Combined Police Authority.—5 pairs of police houses at Trevethan-la., Falmouth. S. Pool, County A., County Hall, Truro. Dep. £3 3s

DECEMBER 15.

***Banstead U.D.C.**—Temporary offices at The Council House. S., Council House, Brighton-rd., Banstead. Dep. £2 2s.

Salford T.C. — Reconstruction of Courts at Town Hall. City E. Dep. £3 3s.

***Southport C.B.**—Rebuilding lavatory accommodation and cloakroom block and other incidental works at Farnborough-rd. Primary School. Chief Education Officer (Building Section), 1, Eastbank-st. Dep. £2 2s.

DECEMBER 16.

Bath T.C.—Foundations for preliminary site works of new Junior and Infants' School at Fosseway Odd Down. Tew and Oliver (F. and A.), 7, Northumberland-bldgs., Bath. Dep. £2 2s.

Bath T.C.—Erection of super-structure of new Infants' School at Moorlands estate. W. G. Nixey, F.R.I.C.S., 18, Charles-st., Bath. Dep. £2 2s.

DECEMBER 17.

Cornwall Combined Police Authority.—5 pairs of police houses at Trevethan-la., Falmouth. S. Pool, County A., County Hall, Truro. Dep. £3 3s.

***Watford T.C.**—Alterations and adaptations at 14, High-st. B.E. and S. Dep. £2 2s.

DECEMBER 23.

***Lincoln (Parts of Kesteven) C.C.**—Pair of police houses at Hervey-rd., Sleaford. C. B. Metcalfe (F.), County A., County Offices, Sleaford.

JANUARY 5.

Wicklow U.D.C.—80 houses with roads and sewers, etc. Town Hall, Wicklow. Dep. £10 1s.

NO DATE.

Northwich.—Therapeutical clinic at Victoria Infirmary. Wright and Hamlyn, Chartered Architects, Patten-chbrs., Winmarleigh-st., Warrington.

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Rhymney.—10 houses with drainage site works, etc., at Pen-y-Dre and Ael-y-Bryn sites. C., Council Offices, Rhymney, Mon. Dep. £5 5s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

DECEMBER 6.

West Riding C.C.—County E. and S. (Materials).

DECEMBER 10.

Buxton T.C.—B.E. (Materials).

ROADS, SEWERAGE AND WATER WORKS

DECEMBER 1.

Macclesfield R.D.C.—Roads and sewers at Robin-la. J. H. Walters, E., 19, Moody-st., Congleton. Dep. £2 2s.

Orpington U.D.C.—New street works at Rookery-gdns., St. Mary Cray. E. and S. Dep. £3 3s.

Taunton T.C.—Construction of 12-in. and 15-in. sewers at Lyngford. B.E. and S.

***Wayland R.D.C.**—Site works at Little Ellingham, Watton and Thompson. H. Marsh (L.), 14, King-st., King's Lynn. Dep. £2 2s.

DECEMBER 3.

Southgate B.C.—Reconstruction of sewer at Streamside-walk, Winchmore Hill. B.E. and S. Dep. £2 2s.

Ware R.D.C.—Roads and water sewers at Gt. Amwell estate. S., 97, New-rd., Ware. Dep. £1 1s.

DECEMBER 4.

Friern Barnet U.D.C.—Making-up Raleigh-dr., Temple-ave. and Alexandra-rd. E. and S. Dep. £2 2s.

Nantwich R.D.C.—Roads, sewers and footpaths at Higher Banbury. E. and S. Dep. £2 2s.

***St. Albans R.D.C.**—Roads and sewers at Lybury-la., Redbourn. C. H. Huskinson, S., 43, Upper Lattimore-rd.

DECEMBER 6.

Honiton R.D.C.—Provision, laying and jointing of 8,700 yds. of 4-in. dia. and 3,100 yds. of 3-in. dia. spun-iron water mains, etc., at Wilmington, Cotleigh and Offwell. Rofe and Raffety, Chartered Civil Engineers, 3, Victoria-st., Westminster, S.W.1. Dep. £2 2s. (cheque only).

DECEMBER 8.

Aireborough U.D.C.—Making-up Hawthorn-dr., Yeadon. E. and S., Micklefield House, Rawdon. Dep. £2 2s.

Cuckfield R.D.C.—Site preparation at Cuckfield-rd., Hurstpierpoint. A. Hutchings, M.I.M.Mun.E. and S., Boltro-rd., Haywards Heath. Dep. £2 2s.

East Barnet U.D.C.—780 lin. yds. of 48-in. dia. storm-water culvert, etc. E. and S. Dep. £2

Salford T.C.—1,400 lin. yds. of 18-in. to 36-in. dia. concrete pipe sewer, etc., at Duchy-rd., Pendleton. City E.

DECEMBER 10.

Bucklow R.D.C.—Roads and sewers at Chapel-la., Millington. E. and S., 26, Station-bldgs., Altrincham. Dep. £2 2s.

Stoke-on-Trent T.C.—Roads and sewers at Abbey Hulton No. 3 site. City E. and S. Dep. £3.

Wells R.D.C.—Excavation for and laying and jointing of about 386 lin. yds. of 4-in. and 625 lin. yds. of 3-in. dia. asbestos cement water mains, valves, etc. I. R. Morgan, E., Council Offices, Wells. Dep. £2 2s.

DECEMBER 12.

Cirencester R.D.C.—2,000 lin. yds. of 4-in. dia. and 1,950 lin. yds. of 3-in. dia. spun-iron water mains, etc. A. H. S. Waters, M.I.C.E., 25, Temple-row, Birmingham 2. Dep. £3 3s.

DECEMBER 13.

Bacup T.C.—Roads and sewers at Huttock End No. 2 site. B.S. Dep. £2 2s.

DECEMBER 15.

Hexham R.D.C.—Reinforced concrete reservoir near King's Law. C., Priestpopple House, Dep. £5.

Hexham R.D.C.—Supply, laying and jointing of approx. 4 miles of 3-in., 4-in., 6-in. and 7-in. pipes at Hexhamshire High and Middle Quarters. C., Priestpopple House, Hexham. Dep. £5

St. Thomas R.D.C.—Supply and laying of 500 yds. of 4-in., 3-in., and 1½-in. asbestos cement water mains, etc., at Christow. Ross, Hooper and Harvey, 38, Market-pl., Chippenham. Dep. £1.

Wigton R.D.C.—9,360 lin. yds. of 9-in. and 6-in. spun-iron pipes, etc., from Fletchertown to Aspatria. W. K. Rodwell, 44, Park Cross-st., Leeds 1. Dep. £3 3s.

DECEMBER 17.

Wetherby R.D.C.—Sewerage and sewage disposal works at three villages. W. K. Rodwell, A.M.I.C.E., E., 44, Park Cross-st., Leeds, 1. Dep. £3 3s.

DECEMBER 18.

Staffordshire Potteries Water Board.—Covered concrete reservoir at Bignall Hill. G. H. Hill and Sons (Manchester), Civil Engineers, 51, Mosley-st., Manchester 2. Dep. £5 5s.

DECEMBER 29.

Portslade-by-Sea U.D.C.—Private street works at Newtimber-dr. and Maplehurst-rd. S., 17, Station-rd. Dep. £2 2s.

GENERAL BUILDING WORK

(LONDON)

Acton. — REBUILDING. — War-damaged houses, 10-16, Hale-gdns., proposed. Architect is W. E. Cross (F.), The Studio, Osterley-rd., Isleworth.

Balham.—FLATS.—Plans by R. G. Covell (F.), 5, Mitcham-rd., S.W.17, for 3- and 5-storey flats, shops, etc., Chetwode-rd., costing £350,000.

Croydon.—REBUILDING.—War-damaged houses and garages at 41, 48, Ash-rd. Plans by I. G. Foster and Partners, 18, Katherine-st., Croydon.

Deptford.—REBUILDING.—Transit shed, St. George's Wharf, proposed by William H. Muller and Co. (London), Ltd., Lower Thames-st., E.C.4. Plans by C. J. Pell, B.Sc., 4, Manchester-sq., W.1.

Finsbury. — RECONSTRUCTION. — Of Mount Pleasant Parcels Office, Rosebery-ave., E.C.1, proposed by Postmaster-General. Plans by Ministry of Works, Lambeth Bridge House, S.E.1.

Forest Hill.—REBUILDING.—Of 7 houses (Shaw's Cottages), Perry-rise, proposed. Architects are Atherton and Brenchley (AA.), 36, Paddington-st., W.1.

Greenford.—REBUILDING.—Shops and flats, 53-59, Greenford-ave., proposed. Architects are Athawes, Son and Co., 170, High-st., Acton.

Greenwich.—SHOWROOMS.—And offices, etc., to be built at 18-19, Stockwell-st., to plans by R. D. Wood, A.I.A.S., 1, Ascot-parade, Clapham Park-rd.

Hornsey. — HOSTEL. — Y.M.C.A. propose acquiring site, Tottenham-la., for hostel. Architects are Kenneth Lindy, Joseph Hill and Partners, 24, St. Mary Axe, E.C.3.

Hounslow.—HOUSES.—Aubrey Watson, Ltd., builders, Worton-rd., Hounslow, propose 150 houses, Worton Court estate. Plans by Richardson, Son and Knowles, 52, High-st., Kickmansworth.

Islington.—REINSTATEMENT.—L.C.C. propose to reinstate and remodel Wessex-bldgs., Wedmore estate, Islington, at a cost of £17,710.

Lewisham. — FLATS. — Site selected in Old Bromley-rd. Plans by Harold Baily (F.), 8, Princes-st., S.W.1.

Putney.—EXTENSIONS.—Additional storey proposed at factory, Deodar-rd., of Spalding Bros., Ltd. Plans by Chamberlain and Willows, 23, Moorgate, E.C.2.

Regent's Park.—FLATS.—Several blocks to be erected in King Henry's-rd. Plans by Douglas and J. D. Wood, 1, Old Burlington-st., W.1. Quantity surveyors are A. E. Thornton-Firkin and Partners, 17, Fitzhardinge-st., Portman-sq., W.1.

Stepney.—ALTERATIONS.—To "The George" public-house, Commercial-rd., nave been approved by Tower justices.

Walworth.—EXTENSIONS.—Of factory, Queen's-row, proposed by F. C. Savage and Sons, Ltd. Plans by P. C. Boddy (F.), 19, Palace-st., S.W.1.

Wandsworth.—ALTERATIONS.—To branch showrooms, 157-159, Wandsworth High-rd., for Montague Burton, Ltd. Plans by staff architect, N. Martin (A.), Hudson-rd.-mills, Leeds.

Wandsworth.—HOUSING.—L.C.C. has approved plans prepared by Mr. Harold Baily (F.), for the Wandsworth B.C., for 68 flats and day nursery, Clapham-cres. housing site.

Wandsworth. — HOUSING. — L.C.C. Housing Committee propose compulsory purchase of 29 acres in Rochampton-la. for housing purposes. The site is occupied by "Downshire," a large Georgian house.

Wandsworth.—HOUSES.—B.C. propose to erect three pairs of "Trusteel"-type houses on each of vacant sites at (a) junction of Skeena-hill and Combemartin-rd., and (b) junction of Skeena-hill and Girdwood-rd.

Wandsworth.—PLANS APPROVED.—The B.C. has approved drainage works and plans as follows: *Clapham North*—Boro' Architect, 12 houses, Gauden-rd.; Mr. Montagu Evans—L. and W. Whitehead, Ltd., extension to Savoy Hotel Laundry, Clapham-rd.; Stone & Co. (London), Ltd., rebuilding shop and flat over, 28, Silverthorne-rd.; *Clapham South*—Banks (London), Ltd., erection of offices, store (Nissen hut) and garage, 111, Clapham High-st.; E. F. Starling, temporary church hall, St. James' Church site, Park-hill; *Fairfield*—Geo. Watts, conversion of Warple Way L.C.C. School to factory for Chemical Building Products, Ltd.; George Coles, laboratory at rear of 84, Upper Richmond-rd.; Boro' Architect, four houses and laying of drains at site of 44-50, Deodar-rd.; *Southfield*—Geo. W. Smith, rebuilding 5, West Hill-rd.; *Streatham*—Boro' Architect, houses 82-76 and 66-58, Danbrook-rd.; W. J. Ingram, Son & Archer, two houses 63-65, Wavertree-rd.; H. James Bros. (Streatham), Ltd., new contraction office and workshops 13 and 13a, Westcote-rd.; *Tooting*—Boro' Architect, 19 houses 74-128 and 43-45, Southcroft-rd.

Wembley.—FLATS.—W. Tucker, builder, Clistonave., proposes block of 17 flats, Empire-way. Plans by Watkin and Piazza, 61, Clarendon-gdns., Wembley.

West Ham.—REBUILDING.—Houses, 89-95 and 99-105, Shakespeare-rd., proposed. Plans by F. F. Tomlin, F.A.I., 195, High-rd., N.22.

Wimbledon.—FOOTBALL STADIUM.—Sketch plans prepared by Buchanan and Coulter, architects, 5, Bedford-row, W.C.1, for new stadium, Wimbledon F.C.

Wood Green.—REBUILDING.—Houses, 16-24, Braemar-ave., being considered by War Damage Commission. Surveyors are Weatherell, Green and Smith, 22, Chancery-la., W.C.2.

Woolwich. — FLATS. — Eight-storey block in Ogilvy-st., costing £325,000. Architects are Adie, Button and Partners, 29, Weymouth-st., W.1.

(PROVINCIAL)

Ambrosden.—Oxfordshire C.C. propose to provide Primary school for 160 children, subject to M. of E. approval.—It is planned to develop estate of 500 houses for War Department.

Amlwch.—Anglesey C.C. propose Secondary school. Plans by J. Elfed Rees (L.), County A., Shire Hall, Llangefni.

Bakewell.—R.D.C. propose developing 5 acres of land at Main-st., Eyam, for housing estate. —Derbyshire E.C. propose extensions to Council schools.

Bangor (N. Wales).—Licensing Justices approved structural alterations to Ship Hotel, High-st., for G. Carter.

Bolton.—E.C. propose extensions at Top-o'-th'-Brow school for nursery classes.

Bullingdon.—R.D.C. approved scheme for conversion of 94 huts at Chalgrove airfield into housing accommodation at £5,122.

Cannock.—R.D.C. propose 60 "Orlit" houses at Huntington at £78,660.

Cardiff.—F. Bowles & Sons, Ltd., to erect depot, offices, canteen, etc., at Avondale-rd. Plans by H. Elvet Llewellyn, 59, Queen's-st., Cardiff.

Chadderton.—Lancs E.C. propose dining-room and kitchen at Grammar school and at North Chadderton Secondary school. Plans by G. Noel Hill (F.), County A., County Offices, Fishergate-hill, Preston.

Chelmsford.—Hawkes Bros., New-st., to rebuild shop, etc., at Duke-st. and Victoria-rd. Plans by A. R. Dannatt & Son, Prudential-bldgs., Duke-st., Chelmsford.

Colne.—Lancs E.C. propose kitchens and dining-rooms at Park Junior and Infants' school and at Primet Secondary school.

Coventry.—Owen, Owen, Ltd., Trinity-st., propose four-storey departmental stores at Pool Meadow and Trinity-st. Plans by R. Hellburg (F.), 13, Queen Victoria-rd.—Gas Committee propose pit-head baths at Foleshill Gasworks recreation ground. Plans by D. E. E. Gibson (A.), County A., 4, Warwick-row.

Cromer.—Secondary school proposed by Norfolk C.C. Plans by F. G. Limmer (F.), Stracey-rd., Norwich.

Denholme.—U.D.C. approved clay works at Dog and Gun estate for C. & S. Parkinson, Ltd.

Durham.—Gray & Kinghorn, Camden-st., North Shields, are architects for central canteen for factories at trading estate at Sherburn.

Grange-over-Sands.—Travco Hotels, Ltd., propose conversion of Grand Hotel into flats and flatlets.

Guildford.—Plans for 5 shops with flats above at London-rd., Burpham, prepared by Orman & Scott (F/A.), Quarry Hill House, Quarry-st., Guildford.

Halifax.—Jackson & Fox, 1, Branch-rd., are architects for factory at Small Lees, Rippondon, for Panereol, Ltd.—R.C. authorities propose schools on site off Cousins-la.

Hartlepool.—A factory for disabled persons to be erected. Plans by C. S. Errington, 46, Grainger-st., Newcastle.

Haydock.—Rev. E. F. Gray, P.P. of Church of English Martyrs, proposes schools at Piele-rd. Plans by W. Ellis & Son (F. and A.), Barclays Bank-bldgs., St. Helens.

Hornchurch.—Plans approved for proposed Cranham Primary school at £68,500. Architects: Chancellor, Simpson & Bragg, 19, Duke-st., Chelmsford, Essex.

Hull.—Hull Speedways, Ltd., propose speedway track and stadium at Hedon Aerodrome. Plans by A. R. Shepperdson (L.), Lloyds-chbrs., Cornhill, Ipswich.

Keighley.—T.C. approved:—Workers hostel at West Myrtle-gr., Cross Hills, for Salts (Saltaire), Ltd., Haworth; shower baths at Keighley Ironworks for Co-operative Wholesale Society, Ltd., 1, Balloon-st., Manchester 4.

Leatherhead.—Three blocks of 4 flats each to be erected at Kingston-rd. Plans by J. Mackie Murray (A.), 13, Gray's Inn-rd., W.C.1.

Lichfield.—T.C. approved:—Factories at Trading Estate, Trent Valley, for C. B. Hitchins and Midland Auto-Electrical Co.; office, works, garage, power house and lavatories at City Station Wharf for Blewitt & Sons.

Lurgan.—U.D.C. approved layout and house-type plans at Shankill at £263,000. The architect and planning officer is Mr. E. W. Beaumont.

Lytham St. Annes.—Authorities of Roman Catholic Church, Lytham, propose new schools.

Manchester.—T.C. approved:—Printing works at Waterloo-rd., Hightown, for proprietors of "News of the World." Ellis, Clarke & Gallanough (FF.), architects, 58, Grosvenor-st., London, S.W.1; garage and storage buildings, at Clopton-st. and Mulberry-st., Hulme, for Insulating Manufacturing Co., Ltd.

Newcastle.—Stephenson & Gillis, Saville-chbrs., Newcastle, are architects for layout of block of shops and offices for Newcastle Co-operative Society at Benton, Newcastle.

Northampton.—R.D.C. propose 209 houses at 16 sites of B.C.C.F. and "Airey" precast types.

North Walsham.—Regional Education Committee approved plans for proposed North Walsham Modern Secondary school. Architect, C. H. Thurston (L.), 25, Thorpe-rd., Norwich.

Oldham.—T.C. propose modernisation of Water Head public wash-houses.—Approved alterations and additions to works at Litterbeck-st. for H. Heywood & Co., Ltd.; additions to works at Cavendish-st. for Paragon Motor Co., Ltd.; engineering works at 393-397, Manchester-rd., for Metro Furnace and Engineering Co., Ltd., L. D. Clegg, architect, 5, Queen-st.; canteen at Bankhall-st. for St. Anne's R.C. school for E.C.—E.C. propose school at Countyhill; youth centre at Townfield.—E.C. propose canteen for Moorside Church Voluntary school.

Oxford.—Alterations and additions proposed to buildings for All Souls' College. Plans by C. H. James (F.), 5, Bloomsbury-st., W.C.1.

Rochdale.—T.C. approved:—Engineering works at Burlington-st. for W. Rawston; alterations, works at 560, Manchester-rd. for Pirelli General Cable Works, Ltd.

Salop.—C.C. approved final layout of proposed county administrative offices.

Sedgefield.—R.D.C. applying for sanction to erect 300 Orlit houses for Cornforth, Ferryhill and Trimdon.

Sheffield.—Housing Committee propose neighbourhood units at Handsworth-Woodhouse estates.

Southend-on-Sea.—H. E. Allen & Co., Ltd., gown manufacturers, 343-357, Victoria-ave., Southend, propose factory at Sutton-rd. Plans by D. F. Lumley (A.), 32, Brendon-way, Southend-on-Sea.

Stockport.—Ace Products, Ltd., propose factory off Sheffield-st.; E. Chandley & Co., Ltd., propose motor showrooms and works off Longshutt-rd.; W. Craven Bros. (Manchester), Ltd., Vauxhall Works, Reddish, propose houses for employees; Watters, Westbrook & Co., Ltd., 119, Princes-st., propose extensions of premises. —E.C. propose school at Grafton-st., Heaton Norris.

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Stroud.—U.D.C. approved plan for maternity home at Bowbridge-la.

Sunderland.—Stephenson & Gillis, Saville-chbrs., Newcastle, are architects for rebuilding of Atlas Cabinet Works at £10,000.

Sunderland.—Factory for disabled persons to be built at Pallion. Plans by C. S. Errington, 46, Grainger-st., Newcastle.

Tilbury.—Mission to Seamen propose to rebuild hostel and club. Plans by Edward Fincham (A.), 9, Palmers-ave., Grays, Essex.

Tottington.—Lancs E.C. propose dining-room and kitchen at Hollymount school.

Tring.—M. of H. has approved layout plan for Gamnel housing site for U.D.C.

Tynemouth.—T.C. to erect 50 houses at Lynn-rd. area to plans by B.E.

Uttoxeter.—U.D.C. propose extensions to cattle market.

Walsall.—T.C. approved:—Offices, welfare room and garages for James Bridge Copper Works, Ltd.—E.C. propose Primary and Secondary schools. Plans by M. A. Habershon, B.E.

Warrington.—T.C. propose conversion of Farmers Stores, Bewsey-st., into Civic Restaurant at £9,064.

Wellingborough.—Branch of Northamptonshire (Town and County) Association for the Blind propose home for the blind at Raunds.

West Lancashire.—R.D.C. propose development of 13½ acres of land at Lydiate for houses.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government departments*.

Barking.—Rebuilding houses at 101-103, Sandringham-rd., 5-9, Stratton-dr., 12-16, Brookdish-ave., 1-3, Oulton-cres. C. J. Dawson, Son & Allardyce, architects, 74, East-st., Barking: *Leftley Bros., Ltd., Longbridge-rd., Barking. Cost £14,233.

Belper.—10 houses at Chapel-st., Kilburn, for R.D.C. J. Laycock, Chief Building S.: *James Milward & Sons, Market-pl., Belper, £23,075.

Bexley.—Erection to two-department school at Apple-av., Welling, Kent, for E.C. R. T. Green (F.), deputy architect in charge of school buildings, and W. C. Blastland, assistant architect, under supervision of S. H. Loweth (F.), County A. Quantity surveyors are Dearle & Henderson, Victoria-st., S.W.1; consulting engineers, J. Stinton Jones & Partners: *Kent & Sussex Contractors, Ltd., Station-rd., Sidcup. Steelwork: T. W. Palmer (Merton Abbey), Ltd.

Bishop Auckland.—96 houses at St. Helen's site, for U.D.C. M. C. Robson, architect, Station-chbrs., Bishop Auckland: *Bell & Ridley, North-rd., Durham (in lieu of tender withdrawn).

Boston.—Three pairs houses at Leverton, for R.D.C.: *J. T. Barber & Son, £2,698 per pair.

Bury.—Houses at Kedvales No. 6 site and Fairfield No. 3 site, for T.C. J. Chadwick, B.E., Municipal Buildings, 28, Bank-st.: *J. & J. J. Massey, Chorley-rd., Swinton, Manchester, £10,900 (8); *J. Jackson, 20, Nuttall-st., Bury (6).

Castle Ward.—74 "Airey" houses at Dinnington Village, for R.D.C. Plans by S., Council Offices, Ponteland: *A. Anderson (Contractors), Ltd., Stanmore-rd., Newcastle-on-Tyne.

Church Stretton.—18 houses at Central-av. A. E. Williams (L.), Shrewsbury. Quantities by Walter B. Bond, F.S.I., Birmingham: ‡W. A. Sherratt, Ltd., Church Stretton, £30,992 (subject to M.H. approval).

Consett.—36 houses at Bradley-sq., Leadgate, for U.D.C.: *F. J. McClean, Derwent Hill, Ebchester.

Croft.—Houses at Manfield, for R.D.C.: *Boddy & Bell, 93, Parkgate, Darlington, £8,318.

Durham.—For extensions to bakery at Annfield Plain, for Kelly, Ltd. Architects: Arthur & Kirkup, Swinburne-st., Gateshead: *Stoddart (Builders), Ltd., Rowlands Gill, Durham.

East Ham.—Rebuilding houses, for B.C. J. E. Austin, O.B.E., F.S.I.A., Chief Housing Officer, Town Hall, E.6: *A. Davis & Sons, 78, Oakfield-rd., E.6, £3,080; *Wm. C. Marks, Ltd., 207, Central Park-rd., E.6, £15,857; *S. Newlyn & Sons, 124, Dersingham-ave., E.12, £4,074; *S. F. Johnson & Co., 90, Hadley-rd., Leigh-on-Sea, £5,100.

Felling.—50 "Airey" rural houses at Highlanes estate, Heworth, for U.D.C. D. W. Green, Housing A., Council-bldgs., Sunderland-rd., Felling: *J. M. Black (Junior), Ltd., Glen-st., Hebburn, Co. Durham, £66,375.

Hull.—136 traditional houses at Holderness-rd., for T.C. A. Rankine (A.), City A.: *B. Pumfrey, Ltd., Chamberlain-rd., Hull, £194,824.

Ilford.—Factory and offices, Chadwell Heath-la., for R. H. Sear & Co., Ltd., Beehive-la., Ilford. J. Reeve Young (F.), architect, 165, Gray's Inn-rd., W.C.1: *J. & J. Dean, Ltd., Ruckholt Works, Ruckholt-rd., E.10.

Liverpool.—Extensions and alterations to premises of Jackson the Tailor, Pudsey-st., Liverpool. Architects: Stephenson & Gillis, Saville-chbrs., Newcastle: *Hawthorne Construction Co., Bootle, Lancs.

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended November 12: Overhaul and repair of an electric bed lift at St. George-in-the-East Hospital, Pickerings, Ltd., Stockton-on-Tees. Rewiring of electric clock system at Eastern Hospital, Homerton, Buchanan & Curwen, Ltd., 66, Victoria-st., S.W.1.

L.C.C.—Erection of transitional school in light construction (tender on the basis that the erection of 11 selected schools would be entrusted to one contractor using priced bills of quantities for typical transitional school:—

	Amount for typical one-storey building. £	*Additional amount for two-storey building.* £
Stewart & Partners, Ltd., St. Marylebone	45,310	4,877
Prestige & Co., Ltd., Westminster	44,330	4,890
Walter Lawrence & Son, Ltd., City of London...	42,930	4,680
Sir Lindsay Parkinson & Co., Ltd., Holborn	42,429	4,470
Holland & Hannen and Cubitts, Ltd., Westminster...	41,724	4,341
J. Garrett & Son, Ltd., Balham	41,372	3,979
Higgs & Hill, Ltd., South Lambeth	41,127	4,117
F. R. Hipperson & Son, Ltd., City of London	40,777	3,898
E. Clarke & Sons, Ltd., Addlestone, Surrey	40,046	4,617
G. E. Wallis & Sons, Ltd., Westminster	39,602	4,032
The Ashford Builders Co., Ltd., Holborn	39,377	4,211
*William Harbrow, Ltd., Rotherhithe	37,228	4,134

Comparable figures of architect's estimate are £38,608, £4,161 and £1,090.

¶London (Admiralty).—*Portsmouth*, Whale Island, Resurfacing of roads and concrete hardstanding, Reed & Mallik, Ltd., Milford Manor, Salisbury, Wilts.

¶London (Air Ministry).—Contracts to value of £500 or over for week ended November 15:—Building work: J. F. Booth & Son, Banbury, Oxon; G. H. Miller & Co., Ltd., London, E.7. General maintenance work: H. O. Andrews, Ltd., Leeds 8. Painting work: Gregory & Jackson, Ltd., Manchester 2; Industrial and Decorative Art Co., Ltd., Mansfield, Notts. Heating and hot water installation: Ashwell & Nesbit, Ltd., Leicester.

¶London (M.O.W.).—Contracts placed by M.O.W. for week ending November 13:—

London: War Office, 29, 34, 35, 36, Chesham-pl., S.W.1, internal redecoration, F. W. Holleyman, Liffords-pl., Barnes High-st., S.W.13; War Office, 52-62, Eaton-sq., S.W.1, internal redecoration, Decorative Art Guild, Ltd., 43, Lower Belgrave-st., Eaton-sq., S.W.1; War Office, 68-72, Eaton-sq., S.W.1, internal redecoration, F. Troy & Co., Ltd., 7, St. James-st., S.W.1; Houses of Parliament, London, restoration stained-glass windows, John Hardman & Co., Ltd., 43, New-hall-hill, Birmingham. *Argyll*: Taynuilt, Argyll, site works and Arcon houses, John MacDonald & Co., Selma, Ledaig, Argyll. *Berks*: Low Lift Pump House, Sutton Courtney, Berks, sheet piling work, G. Wimpey & Co., Ltd., Tilehouse-la., Denham, Uxbridge, Middlx.; Blg. 220, A.E.R.E., Harwell, treatment of extract trunking, Matthew Hall & Co., Ltd., 26-8, Dorset-sq., N.W.1. *Cumberland*: Windscale Works, Sellafield, Cumberland, general mechanical works, Matthew Hall & Co., Ltd., 26-8, Dorset-sq., N.W.1; general electrical works, Grierson, Ltd., St. George's House, 195-203, Waterloo-rd., S.E.1. *Durham*: St. Joseph R.C. School, Washington, Co. Durham, dining-room and scullery, Constables, Groat House, Collingwood-st., Newcastle-on-Tyne. *Glam.*: Employment Exchange, Cardiff, installation hot water, gas services and ventilation, J. G. Proger & Sons, Ltd., 17, St. Andrew's-cres., Cardiff; erection electric lifts, Waygood-Otis, Ltd., Falmouth-rd., S.E.1. *Hampshire*: Rafborough and Pinewood Married Quarters, external painting, Arnold Sharrocks, Ltd., 229, Spotland-rd., Rochdale, Lancs. *Herts*: St. Albans and St. Stephen R.C. Schools, London Colney, Herts, additional classrooms, J. G. Gibbs & Sons (Cont.), Ltd., 732, St. Albans-rd, Garston, Watford. *Kent*: Challock, nr. Ashford, Kent, permanent houses, C. Jennet & Son, Ltd., 53-59, Broadmead-rd., Folkestone; Sir Roger Manwood Grammar School, Sandwich, Kent, kitchen and dining-room, Operative Builders and Decorators, Ltd., Park-la., Birchington, Kent.

Lanarkshire: Bramchal-rd., Motherwell, Lanark, Tarran houses, McLean & Co., 73, Glasgow-rd., Wishaw. *Lancs*: Girls' Grammar School, Leigh, Lancs, kitchen and dining-room, A. E. Prescott, Ltd., Holden-rd., Leigh, Lancs; Customs and Excise, King's Warehouse, 967, Dacre-st., Liverpool, Lancs, alterations and additions, Sutch & Miller Hughes, Prince Alfred-rd., Wavertree, Liverpool. *Middlx.*: National Physical Laboratories, Queen's-rd., Teddington, Middx., erection staff hut, Kennan Construction, Ltd., 21, Hamworth-rd., Feltham, Middx. *Shropshire*: C/E School, Avenue-rd., Newport, Salop, temporary building, John McLean (Bldrs.), Ltd., Coven, nr. Wolverhampton. *Staffs*: Aldridge & Pelsall, County Secondary Modern School, Walsall, Staffs, temporary building, Bevricks (Walsall), Ltd. (Bldrs. and Contractors), 6, Rutter-st., Walsall. *Sussex*: West Chiltington, Telephone Exchange, erection of T.X., W. Carver, Templemead, West Chiltington Common, Pulborough, Sussex. *Warwickshire*: St. George's C. of E. School, Gt. Russell-st., Birmingham, temporary building, S. W. Slaughter & Co., Ltd., 56, Pershore, Birmingham; Bilton-rd. Girls' School, Rugby, Warwick, temporary building, Foster & Dicksee, Ltd., James-st., Rugby. *Worcs.*: Hewell Grange, Redditch, Worcs., alterations and adaptations into Borstal Institution, Kent & Sussex, Ltd., 270, Corporation-st., Birmingham; M.O.S. Storage Depot, Summerfield, Kidderminster, Worcs., laying concrete and tarmacadam road, George Law, Ltd., Comberton-hill, Kidderminster, Worcs. *Zetlandshire*: Brough Public School, Whalsay, Zetland, temporary classrooms, Pearson & Fraser, 34, Market-st., Lerwick, Zetland; Baltasound Public School, Zetland, temporary classrooms, Pearson & Fraser, 34, Market-st., Lerwick, Zetland; Mid Yell Public School, Zetland, temporary classrooms, A. Irvine & Sons, Fort-rd., Lerwick, Zetland.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended November 8:—

Northamptonshire: Roadwork, Apex Asphalters, Ltd., Stockport. *Worcs*: Painting work, J. J. Hamilton, Oxford. *Pembrokeshire*: Roadwork, Bituminous Surfacing, Ltd., Manchester. *Berks*: Pitchmastic flooring, Messrs. Permanite, Ltd., London, E.3. *Surrey*: Painting work, F. Labbett & Sons, Nottingham; Arundel (Cont.), Ltd., Bradford.

Morecambe and Heysham.—Extensions, etc., to Nurses' Home at Queen Victoria Hospital, Thornton-rd., for Board of Management. W. J. Morley & Son (F.), architects, 269, Swan-arcade, Bradford, Yorks: *W. Huddleston & Son, Back Sefton-rd., Morecambe and Heysham, £13,499.

Nantwich.—20 "Airey" houses at various sites, for R.D.C.: *T. Platt, Shavington, nr. Crewe.

Newburn (Northumberland).—Four houses, for U.D.C.: *A. Luff, Throckley, Northumberland.

Newcastle.—Stores and offices for R. Johnston & Sons, wholesale stationers, 44, Prudhoe-st., Newcastle. Architects: Arthur & Kirkup, Swinburne-st., Gateshead: *Tate & Kelly, Redheugh Bridge-rd., Gateshead.

Northampton.—Extensions for classrooms, cloakrooms, etc., at Boughton County school, nr. Northampton, for Northamptonshire E.C. J. Perkins (L.), County A., County Hall: *Chowns, Ltd., 63, Edinburgh-rd., Northampton, £10,649.

Paddington.—(1) Steelwork, and (2) foundations, for block of flats at Fulham-pl., W.2, for B.C. W. E. Roberts, B.Sc., B.E. J. C. Quinn, A.M.I.C.E., consulting structural engineer, 40, King William-st., E.C.4. H. H. B. Stewart & Co., quantity surveyors, 33, Craven-st., W.C.2: (1) *Palmer's Hebburn Co., Ltd., 56, Kingsway.

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Pontypridd (Mon.).—Factory, offices, canteen, etc., for Steinberg & Sons (London and South Wales), Ltd., 120-122, Aldersgate-st., E.C.1. Sir Alexander Gibb & Partners, Queen Anne's Lodge, Queen Anne's-gate, S.W.1. Digby L. Soloman (F.), consulting architect, 21, Bloomsbury-way, W.C.1: *E. Taylor & Co., Ltd., Littleborough, Lancs.

Rochdale.—Works for T.C. S. H. Morgan, B.S. Alterations, etc., at Lower-pl. Senior school: *Brierley & Castree, Mellor-st.; alterations, etc., at "Horse Carrs," Falinge-rd., for conversion into home for aged persons: *T. Wilkinson & Sons (Rochdale), Ltd., Walpole-st; alterations and additions at "Roylelands," Manchester-rd., for conversion into homes for aged persons: *E. Haigh, 15, Deeplish-rd. (all of Rochdale).

St. Pancras.—20 flats at Harrington-sq., for B.C.: *Direct Labour, £41,061.

Salford.—Extensions to Engineering Works at Blackfriars-rd., for J. W. Jackman & Co., Ltd. W. Telford Gunson & Son (F.), architects, 10, Marsden-st., Manchester 2: *E. B. Jones & Rawlinson, Ltd., Leaf-sq., Pendleton, Salford 6.

South Shields.—Offices at Jarrow-rd., Tyne Dock, for Clayton & Armstrong, timber importers, Low Fell, Gateshead: *Stanley Thompson, Ashtree-Gdns., Low Fell, Gateshead.

Sunderland.—24 houses for T.C. J. E. Lewis, B.E.: *G. Porteous (Builders), Ltd., 34, West Sunniside, Sunderland (8); *C. Yeoman, Ltd., Ryhope (12); *E. Bailey, 128, The Broadway, Grindon, Sunderland (4).

Truro.—20 houses at St. George's-rd., for T.C. S. John O'Farrell, City E. & S.: *G. Wallis & Sons, Ltd., Boscawen-st., Truro, £23,887.

Wandsworth.—Installation of central heating and hot water system to serve 116 flats and 19 aged people's dwellings at Iron Mill-pl. housing scheme, for B.C.: *Arthur Scull & Son, Ltd., Kingsway House, W.C.2, £16,675 (subject to L.C.C. consent).

Warrington.—56 houses at Poplars-av. site, for T.C. J. Y. Hughes, M.I.C.E., B.S.: *W. L. Challinor, 2, Brian-av., Warrington, £62,203.

West Hartlepool.—10 houses at Southbrooke-av.: *C. M. Yuill, Ltd., West Hartlepool.

Registration of Building Apprentices.

The National Joint Council for the Building Industry have published Pamphlet No. 2, dealing with the "Advantages of Registration of Apprentices in the Building Industry." This is the second of the series, which was opened by Mr. Forsdike (chairman of the National Joint Apprenticeship Board) with his pamphlet, "Opportunity for Youth." It is felt that whatever the temporary effect of the curtailment of capital expenditure in the building industry may be, the recruitment of apprentices must go on. The tendency within the industry is towards a higher percentage of craftsmen in relation to the total number of operatives employed. For this reason, there is an urgent need to continue the encouragement of boys to enter the craft side of the industry, where training is now organised. The pamphlet sets out the advantages of registration to the apprentice. It is essential in the interest of the apprentice to have his attainments at technical classes recorded in the endorsement of his indentures, at the termination of apprenticeship.

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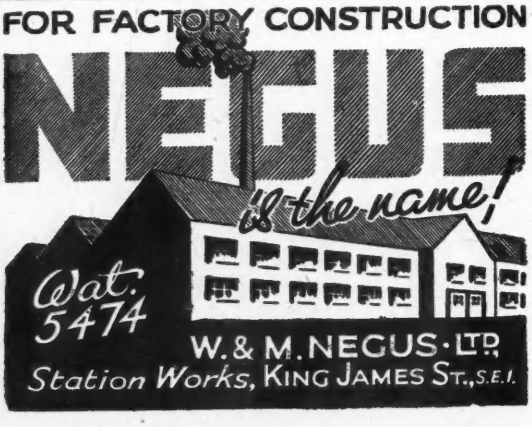

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